Rubber Journal and International Plastics

L. 137 NO. 1 AUGUST 15 1959 Price 1s. Weekly

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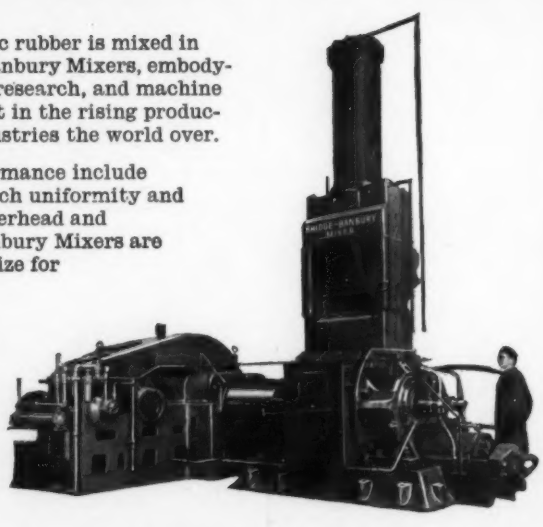

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Rubber Journal and International Plastics

Volume 137 **Price 1s. Post free 1s. 4d.** **No. 1**
IN ITS 76th YEAR

August 15 1959

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Grams : ' Buns, Souphone, London ' Phone : HOP 5712
Annual Subscription, including Postage: United Kingdom and Oversea, £2 15s.; Index (half-yearly), 10s. per annum extra. Published weekly. Registered at GPO as a Newspaper. Registered for Transmission by Canadian Magazine Post. Entered as Second Class matter at Post Office, Boston, Mass, USA, under the Act of March 3, 1879 (Sec. 397 P. L and R.)

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NOTES of the WEEK

Anniversary

THIS is the first issue of the Journal for seven weeks. The whys and wherefores of the dispute in the printing industry have been adequately thrashed out in the national Press and there is no call, therefore, to make more than a mere mention of it now. Obviously, a great deal has happened in that time in the industries with which the Journal is concerned. Something, even, has happened to the Journal itself. On August 6 occurred the 75th anniversary of its foundation, for it was on that day in 1884 that the first issue of ' The India Rubber and Gutta-Percha and Electrical Trades Journal '—as was the title then—was published. Looking back over the 75 years covered by the life of the Journal, one cannot fail to be impressed by the great changes that have taken place in the rubber industry. In 1884, for instance, Brazil and Africa were the main sources of supply for the rubber manufacturer. Oddly enough, the prices quoted in the market section differed only a little from those now current, although there have certainly been many ups and downs in the interval. The price of fine Para on August 6 1884 was 2s. 5½d. against the figure of 2s. 7¼d. for No. 1 RSS spot in London on August 6 1959.

Rubber and Plastics

IN the same first issue there was an account of ' Messrs P. B. Cow, Hill and Co.'s Manufactures '. Colourful reference was made to ' the noble pile of buildings ' in which the firm carried on business: ' a handsome edifice arisen, Phoenix-like, from the ashes of a former building '. Nearly three pages were devoted to the company's products but it was noted at the end that ' the firm raised objections ' to the publication of an article when it was first projected. One could, of course, continue with many other quotations but there is space only for two more, one of which shows that the Journal could, even then and with its long name, have included the word ' plastics ' in its title. In the third issue of the Journal an article described the preparation and uses of gun-cotton as a substitute for rubber and mentions Parkesine and Xylonite among other materials. The article ends with a note to the effect that the introduction of celluloid ' rests as much as anything on our inability to produce a white, hard rubber suitable to those uses for which ivory is at present applied, such as chessmen, knife handles, billiard balls, tortoiseshell combs . . . and other articles of ornamental application '. Finally, an eminently reportable item, from the Journal's first number, which reads as follows: 'A patent electric clothes line has been invented. Upon an attempt to remove the clothes an alarm is sounded, four dogs set loose, a gun is fired, and the thief drops.'

Natural and Synthetic

RECENT statements by Sir Geoffrey Clay, Controller of Rubber Research in Malaya, now visiting the US, have stressed the tremendous strides Malaya has made in recent years in replanting with high-yielding materials. Although natural rubber now commands a premium over synthetic rubber, Sir Geoffrey has pointed out if the price of natural is forced down by competition or other economic forces, Malaya must be in a position to sell profitably at prices competitive with synthetic. In a statement in Washington earlier this month he said: ' We can do this today. With our replanting of high production rubber, we shall be in an even better position to do it several years hence.' Sir Geoffrey estimated that Malaya by 1965 will be producing some 900,000 tons a year, compared with 660,000 last year. In this connexion, it is interesting to note that the budget currently made available by Malayan rubber growers for research and development work on natural rubber is at the rate of some £1¼m. annually. This is, of course, derived from the assessment on each pound of rubber exported from Malaya, and it is worth realizing that as production from high yielding plants increases, so will the research fund grow with it. Among other points of interest, Sir Geoffrey mentioned briefly the pilot stage production of natural rubbers that look and act like plastics, and experiments in areas of research where synthetic now has the advantage. He concluded by saying that with the four to five million ton annual consumption forecast within the next decade, the future was built about a two-commodity rubber market—natural and synthetic.

Plastics Output Rises

FIGURES published by the Board of Trade show that sales of plastics materials increased rather more slowly in the first quarter of this year than in last year's final quarter. In spite of this lesser increase rate, however, it looks as though production of thermoplastics has reached a new record level for stocks are recorded as having appreciably increased. Exports of all types of plastics materials during the first quarter were well up on the figures of a year ago —32,800 tons, 18% up. If there is anything in these figures to cause surprise it must be in the degree of increase because there can be no doubt that the upward trend, particularly in thermoplastics, is one that will be with us for a long time yet.

Subscriptions

DUE to the fact that subscribers to RUBBER JOURNAL AND INTERNATIONAL PLASTICS have not received issues of the Journal during the printing strike, an adjustment in price will be made when subscriptions next become due.

NEWS *Briefs*

INDIAN SR — SWEDISH/FRENCH AGREEMENT
PIRELLI CONTRACT — TYRE EXPANSION IN
ISRAEL — US PLASTICS — DOMINICAN FACTORY

●**United States**—Plans to build a major plant to produce polythene resin at its Victoria, Texas, works have been revealed by the Dupont Co. The plant, with a multi-million-lb. capacity, will be less than half the size of Dupont's Sabine River Works polythene plant at Orange, Texas, according to the company. Construction of the facility would start soon, Dupont said, and completion was scheduled for early 1960.

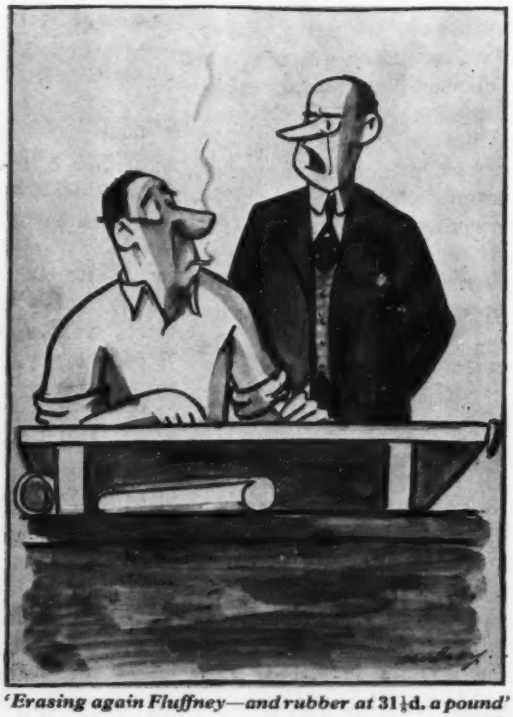
●**Israel**—A plan to enlarge the productive capacity of the Alliance Tyre Hadera plant from the current 4,200 tons a year to 7,500 tons has been adopted, reports Barclays Bank DCO. The programme involves an additional investment of $2,000,000, half of which will be raised in the United States. The Bank adds that the company, which recently won a Ceylon Government tender to supply tyres worth $15,000, hopes to export small size tyres to the United States in view of the present popularity of small cars there.

●**France**—The recently-signed trade agreement between France and Hungary provides for the supply to the latter country of various products including plastic materials, synthetic fibres, and rayon thread and threads for tyre making. Hungarian exports to France will include various rubber goods, rubber boots and footwear, and rayon yarns.

●**United States** — The Columbian Carbon Company of the United States will build a six million dollar plant with production facilities for over 60 million lb. of carbon black annually to supply the European Common Market area, it has been announced. Construction of the new plant has begun in northern Italy, near Milan. It is expected to be in full operation by early 1961. It will operate under the company name of Columbian Carbon Europa. The move into the Common Market by Columbian Carbon is part of the overall international expansion of the company. The firm is now studying other likely locations for further world expansion. Columbian Carbon Europa will be the largest initial carbon black facility embodying modern American designs to be built in Europe. Most of the material for the new plant's construction will come from Italy and other Common Market nations. Italian construction companies will build the plant from Columbian designs.

●**Guatemala** — Rubber tyres and tubes are included amongst items covered by the recently-signed second additional protocol to the Free Trade Treaty between Guatemala and El Salvador. The object of this second protocol is to enlarge the list of products that can be exchanged between both countries without payment of duties.

●**Sweden** — Thermo - hardened synthetic resins, moulding powders, urea-formal, impregnated sheets of melamine resins, and aminoplasts, valued at 5,610,000 Swedish Kroner are to be exported to France by Sweden under a new trade agreement between the two countries. Other products to be sent to France will include various articles of plastics materials (Kr.220,000), equipment for the rubber and plastics industries (Kr.360,000), technical articles of rubber (Kr.165,000), and rubber footwear (Kr.635,000).



'Erasing again Fluffney—and rubber at 31½d. a pound' —445

●**Dominica**—A large plastics factory, Industria de Plasticos C. por A., commenced production in the Dominican Republic at the beginning of July. The firm's products include hosepipe, tableware, trays, bowls, tiles and combs. It is stated that the Republic's imports of chemicals will be considerably increased as a result of the new industry.

●**Turkey**—The Turkish Government has accepted the application made by a group of private undertakings and by the Société Internationale Pirelli SA, of Basle, to build a tyre factory in Turkey, the Pirelli Company has announced. For this purpose a company with a capital of 45 million Turkish pounds has been formed. The factory's initial production capacity is expected to be about 120,000 tyres annually, but this will be raised soon afterwards to 250,000. The factory should commence operations in 1960.

●**United States**—Plastics are replacing steel and other conventional materials at a faster pace in European cars than they are in the US-designed cars. But even abroad, acceptance varies from country to country and is determined by economic conditions, consumer tastes, status of the plastics industry and even national temperament. Product Engineering, a McGraw-Hill publication, asked its overseas representatives in seven key countries to make a survey of car-makers in their respective countries and to find out how and why foreign cars are ahead of Detroit in the amount of plastics being used. Foreign designers, they found, outstrip Detroit not only in lb. of plastic per car, but also in rate of usage. Plastics in 1959 US cars average 20lb. per car; in 1959 foreign cars (Britain, Italy, Japan, West Germany, Soviet Union, Sweden and France) about 30lb. per car.

These Autolock milling chucks made by Clarkson (Engineers) Ltd., Nuneaton, are now presented in a container with a moulded interior of Montopore P foamed polystyrene supplied by Monsanto Chemicals Ltd. The foamed polystyrene moulding, which is by Elford Plastics Ltd., has separate compartments to keep the components in place and free from damage (*Monsanto photograph*)

●**Philippines** — According to the Economic Affairs Division of the Philippine Embassy in Washington, Philippine imports of rubber and rubber manufactures in 1958 totalled 3,099,500 pesos. Exports amounted to 116,500 pesos.

●**Italy**—The Pirelli Co. of Milan has been awarded a multi-million-lire contract for the supply of foam rubber to the US Forces in Germany, the company announced. The foam rubber will be made in the works of the Pirelli-Sapsa Co. at Sesto San Giovanni.

●**United States**—A new do-it-yourself adhesive rubber sheeting claimed to protect against abrasion ten times longer than steel has been announced by the B. F. Goodrich Co. Mr James C. Richards, vice-president of the firm's industrial products division, said the material, called 'Armorline,' can be applied as a protective lining to metal, concrete, wood and other materials almost as easily as a cold patch to an old-fashioned inner tube. A thin gauge of tacky rubber is bonded to the 'sticking' side of the material protected by Holland cloth which is removed before use. Neither expensive tools nor special skill are required for covering or patching equipment, Mr Richards said.

●**France** — Compagnie Française Goodyear — a subsidiary of the American Goodyear Co.—is to build a tyre works in the Amiens industrial area of North France. Initially the works would employ 500 and have a daily tyre production of 2,000. Later extensions would allow facilities to enable 20% of the output to be exported. It is claimed that this French concern is the first in Europe to be built especially to function within the framework of the Common Market.

●**India**—Mr Satish Chandra, Union Deputy Minister of Commerce of India, expressed on June 25 the hope that shortly a synthetic rubber factory with a production capacity of 30,000 tons a year would be established at Bareilly (UP). He said that recently a study group from the US had visited the country for a study of the economics of manufacture of synthetic rubber based on alcohol.

●**Mexico**—The industrial group in Mexico showing the largest single production increase during 1958 was the manufacture of rubber goods, which went up by 17%.

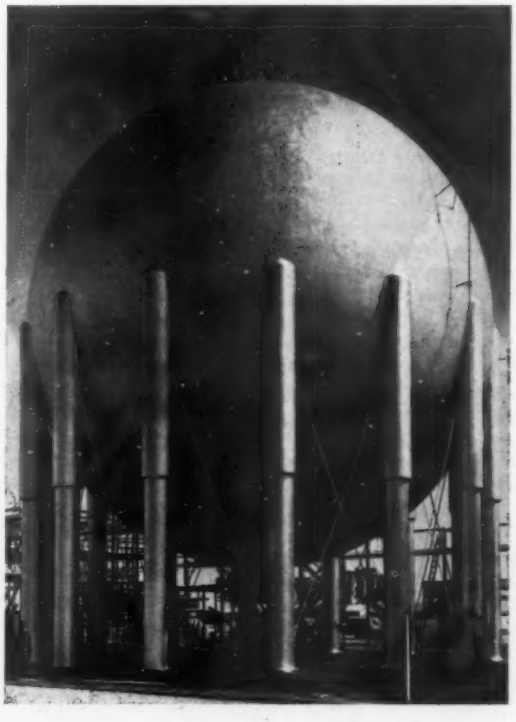
●**United States**—The Dayton Rubber Co. has formed a new division to be known as the 'Dayton Rubber International Division,' Mr Clowes M. Christie, the firm's president, has announced. The new division will include the company's current foreign technical service programme and export operations involving product shipments to 45 countries. Responsibility for Dayton's two foreign operating subsidiaries in Scotland and Canada also will lie with the new division.

●**Iran**—The Goodrich Co. has been registered for the manufacture of tyres, tubes and other rubber and synthetic products, in association with Iranian private interests. A factory, which will cost over £2 million, is to be situated in the suburbs of Tehran.

●**Indonesia**—Indonesia's rubber production is threatened by 'terrible decline' due to the old rubber trees in the estates, *Business News*, an economic journal, has reported. The journal said replanting was still not being done while many rubber trees in the estates had grown old.

●**Pakistan**—A United Nations expert, a Mr William Boyd, after a survey of soil and climate, and tests in the Cox's Bazaar area, has recommended to the East Pakistan Government the setting up of an experimental rubber plantation: seeds are to be imported from Malaya. A private firm is also to try rubber cultivation in an old tea garden.

●**Indonesia** — Provision has been made in a triangular agreement between Pakistan, Czechoslovakia and Indonesia for, *inter alia*, the supply of rubber to Czechoslovakia by Indonesia.



Believed to be the largest insulated vessel of its type in the world, this 2,000-ton ammonia storage sphere at the new ammonium nitrate factory opened by Fisons Ltd. on the Thames Estuary at Stanford - le - Hope, Essex, is insulated with 'Onazote,' manufactured by the Expanded Rubber Co. Ltd., Mitcham Road, Croydon, Surrey. The sphere is 60ft. in diameter and two 1½in.-thick layers of 'Onazote' have been used for the insulation. 'Onazote' is expanded ebonite with a closed-cell construction. Another Expanded Rubber product, 'Rubazote,' is being used extensively by A. B. K. J. Levin, of Malmo, Sweden in the manufacture of their frozen food display cabinets

Plastics at Work

INTERESTING DISPLAY AT PARIS EXHIBITION

By DAVID ALEXANDER

A MOST interesting and large assembly of approximately 1,400 exhibitors and nine miles of corridors comprised the 5th Salon de la Chimie held in Paris in June. The display was sub-divided into six main exhibitions three of which were concerned to a considerable extent with plastics. These were plastics and rubber materials, laboratory equipment, and chemical engineering and protection against corrosion; the last two of main interest.

The initial impression gained, especially after first having left the International Plastics Exhibition in London, was the very much more extensive display of plastics engineering work on show including ducting, large ranges of PVC fans and large scrubbing plant, etc. The second main impression was how much more work was done in PVC than polythene on the Continent compared with the UK where a greater proportion of plastic work is done in polythene and where there is a much wider range of polythene technical products especially such items as moulded valves and fittings. This to a great extent is due to the fact that PVC was known and commercially used long before polythene in France whereas the converse was true in the UK.

Laboratory Equipment Exhibition

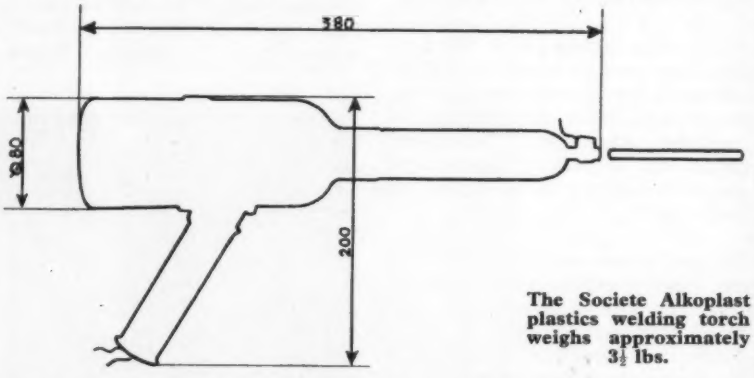
This sub-exhibition had approximately 90 exhibitors many of whom demonstrated the use of plastics in the construction of laboratory equipment apart from which many of the stands had separate sections devoted entirely to equipment made from various plastics materials. In general it was noticeable that there was a much greater amount of moulded nylon products including sterilizable bottles and other containers. It is not possible to mention and review each stand but a cross section is described.

Unexpectedly among all the laboratory equipment on show was the stand of Société Alkoplast where an electric welding torch for use with thermoplastic materials was displayed. This torch, the sketch shows the dimensions, weighs approximately 3½lb. and has a 16,000 rpm motor running on 110 to 220 volts with various heat strengths varying from 700 to 2,000 watts giving a temperature range of between 50 and 510°F.

The welding torch which works in conjunction with a temperature controlling rheostat is very simple to operate and it is claimed that it is suitable for welding both rigid and flexible PVC, high and low pressure polythene and kralastic. The price of this unit in France is approximately £24 ex-works plus an extra sum of £12 10s. for the temperature controlling rheostat. Although this may basically be a high price the efficiency of the unit and the length of life should outweigh the initial comparatively high cost. This company also had centrifugal fans ranging from 100 cubic cfm to 1,500 cfm. The price of the 100 cfm unit was approximately £15 and that of the 1,500 cfm approximately £100, which in the case of the smaller unit would appear to be a very interesting price although in the case of the larger unit the comparable price structures in the UK are probably lower. Also in the laboratory equipment field, Société Touzart et Matignon had a very good display of plastic laboratory equipment including aspirator bottles, measuring cylinders, beakers, pipette washers and wash bottles, all of these being made from polythene. From discussions with an official on the stand the pipette washer in particular is proving of very great interest and value in France due to the very high chemical resistance of the plastic against such acids as chromic sulphuric and other similar acids which are used in many cases to wash the pipette. Although in surface appearance some of these items differ in design from those on sale in the UK the basic principles involved are apparently identical. Another company which had a very excellent display of plastic laboratory equipment was 'Le Materiel Scientifique Moderne.' On this stand there were a number of items including laboratory bottles and other containers made from polyamide which from what was on view is very widely in use in Europe, certainly more so than could have been judged from the International Plastics Exhibition in London. Also on show were carboys made from polythene with the very useful addition of a handle which at the moment is not always the case with the same product in England. Centrifuge tubes made from polypropylene were also demonstrated.

Exhibited by Les Verreries D.M. was a mercury stand in plastic for ureometers which appeared to be new in design. Also there was another design of pipette washer made to take pipettes of a maximum length of 450mm., this unit having an evacuation tank only at the base of the washing column and with the syphon tubes fitted externally. Also on this stand among the usual plastic laboratory equipment were measuring cylinders made from cellulose acetate and from clear PVC which as far as is known is not used in England.

The firm of Chavonnet et Cie. had on show a range of special cocks made from Pyroflex, a plastic material with a high resistance to shock, abrasion and chemical agents. Unfortunately it was not possible to obtain information as to the precise chemical structure of this material. The firm of Griffin and George Ltd. had a very wide range of laboratory



The Societe Alkoplast plastics welding torch weighs approximately 3½ lbs.

equipment on show but not a great deal of real interest in plastics.

On the stand of Verneret were some beakers made in a flexible plastic material which are the only type that were on show at this Exhibition, also was equipment including a special PVC clear tubing for blood transfusion, this material corresponding to the French regulations with regard to toxicity. Of interest, too, was an anti-static rubber which permits the fabrication of medical articles for use in anaesthesia in particular and conforming to medical specification.

The firm of Zwick had on show test machine for rubber and plastic materials to the ASTM (flow test specifications).

The laboratory equipment section of this Exhibition showed a great deal of what is being done with plastic materials and the impression is gained that there is a considerable amount of plastic mindedness among the laboratory suppliers in France and from the various products especially the moulded products on show, it is quite obvious that plastics are very well established in this field. Unfortunately one cannot help but feel that the attitude of both user and seller of laboratory equipment in England is to say the least of it not as positive, this attitude, however, will most certainly change mainly due to the efforts now being made by the more progressive laboratory equipment supplying companies in England.

Chemical Engineering and Protection Against Corrosion

In this very large and fascinating display of chemical plant and equipment there were many evidences of plastics in use in small ways as well as large, and in themselves not of particular individual interest. But nevertheless the whole impression was that plastics and in particular PVC were much more frequently considered in the construction of plant and not as is sometimes the case as a last alternative. At the various stands visited there were many examples of PVC fan units to be seen with a wide range of capacities on show, a multitude of these units being made on the basis of centrifugal design and in all cases with fabricated impellers and with the fan casing in many cases being of split design with either flanged or spiggotted fitting. Although these units looked certainly of robust construction and of efficient design one cannot help retaining an element of caution with regard to the use of a split casing especially with the more corrosive fume which in spite of efficient gasketing and welding can sometimes find its way through the casing From a general examination of fan capacities it would appear that in larger fan units the cfm obtained in relation to dimension is perhaps not quite as high as in England although in the case of small fans this is not so.

Fans and Pumps

Among the companies worthy of mention is Société Plastec who had on show centrifugal fan units of forward curved blade design but with a peculiar extra tip curve which they felt gave a special efficiency to the unit and cut down the heavy tip stresses which of necessity are present during the running of the impeller. Centrifugal, partly immersed pumps made from PVC, capable of handling up to 16,000 litres an hour were another feature. Also on show were fume cupboards and experimental sealed boxes for controlled experimentation, these boxes being so designed to allow PVC blocks to be fitted. Another example of interest was clear PVC sheet welded in the form of boxes which were used for marine breeding aquariums. The tanks were fitted with PVC wastes against the standard practice in England of using polythene waste systems.

The stand of E. G. Leau et Cie. was devoted to showing the large-scale plant that is being made from PVC with particular emphasis on the use of clear PVC sheet in order to give efficient lighting within the various processing units constructed.

Plastilak Amboise had on show a very extensive range of valves made from PVC fitted, if required, with pressure gaskets and flanges, the bore sizes ranging from ⅛in. to 2in. and all having a test pressure of 10 kilograms per square centimetre. The seal is in most cases made from Teflon. Although these valves appeared to be efficient and certainly the mechanical movement was good, one again cannot be certain without trial that spindle seepage will not develop. Although these are good units the new high density polythene diaphragm valves in England would seem to be of a more efficient design than anything seen in valve design at this exhibition. Also from various enquiries at stands showing these valves the price structures seem in comparison to UK prices to be very high indeed.

Alkoplast also had a stand in the Protection Against Corrosion section of this exhibition and showed fans made from not only PVC but the French equivalent to Diakon, Kralastic and high density polythene. An interesting side point here is that it is claimed that these fan units made from high density polythene can operate up to 120°C. For the same type of fan unit made from the same material in the UK it is very doubtful if any figure above 90°C. would be claimed. Various officials were questioned as to the development in the construction of fan units from polypropylene in France but as yet there is no commercial availability of such units, according to their comments. From reports, however, from the plastic material manufacturers at this exhibition it would appear that units have been made from polypropylene and are in operation in certain factories. Perhaps in view of this comment one can assume that a certain degree of commercial caution explained the rather negative comments made. A number of companies had on show stoves or ovens for the pre-heating of plastic sheets for fabrication purposes. The use of ovens for pre-heating sheets in England is almost unknown with the exception of four or five fabricating companies, although economically it would seem to be a necessity for any serious fabricator.

Large-scale PVC Structures

Etablissement Louarn had a very large display of fabricated and welded PVC plant and from conversations with an official of this company it would seem that not only Louarn but their competitors are undertaking fabricated and welded work in plastic materials on much larger dimensional structures than is the case in England. For example in Oran in North Africa tanks have been lined in PVC to contain 1,000 hectolitres of liquid; this is well in excess of anything that is done here in England. Also tanks entirely made from PVC with PVC reinforcement only with a diameter of 9ft. and a height of 12ft. are being made. A special acid storage room has been lined entirely in PVC with a breadth of 24ft. by 40ft. long by 17ft. high; as far as is known this has not been done in England. Another use for PVC is in the construction of Archimedes screws for the progressing of chemical powders through processing tanks. As a matter of interest various examples of PVC fabrication were illustrated and are quoted below as some of these applications may not already or as yet have been considered in England using these materials.

The ferric chloride store at the Simca Works at Poisset; the water circuit systems at the mineral waters plant of Société Normand; the SO 4H2 vapour extraction plant at

Continued on page 14

Swedish Rubber Conference

FILLERS AND AUTOMATIC PROCESSING

THE annual meeting of the Sveriges Gummitekniska Förenings took place this year on May 22 and 23 and consisted basically of a symposium on white reinforcing fillers which occupied a full day and a second, shorter, symposium on automatic processing and testing techniques.

F. von Spulak, of Farbenfabriken Bayer, gave a general account of the properties of a number of typical active and inert light coloured compounding ingredients, illustrating by means of graphs the incidence of optimal peaks of reinforcing ability in these loading/reinforcement studies in the cases of the active materials. The next contribution was a paper entitled 'Accelerator Problems Connected with the Use of Reinforcing White Fillers,' by W. R. Pryer, of I.C.I. Mr Pryer used the aluminium silicate 'Fortafil A70' as the basic white filler in his work and, after showing how different classes of accelerators may react on rate of vulcanization in the presence of active fillers in ways which cannot be accurately forecast from studies of pure gum or inert filler loaded compounds, he discussed the use of ethylene and diethylene glycols in controlling cure rates, finishing his lecture with a considerable amount of useful practical information concerning the problems which arise in moulded footwear production. The final paper in the Friday morning session was read by W. Clas of Füllstoff-Gesellschaft Marquart/ Wesseling and was devoted to a summary of the vulcanizing characteristics of certain inorganic reinforcing agents.

Reinforcing Silica

The Friday afternoon proceedings commenced with a lecture by R. Wolf of Columbia-Southern Chemical Corporation entitled 'Reinforcing Silica in the US Rubber Industry—A Survey of its Production, Properties, Use and Economics.' Dr Wolf's remarks dealt very thoroughly with a wide variety of data and opinion about silicas, and his exhibit of a section of bright red tread which had been cut from a tyre after running for a mileage approaching the performance of conventional black tyres excited great interest. A very practical paper by E. W. Schwartz of Columbian Carbon Company was read by Dr R. Fialla in the absence of the author, the subject being the behaviour of various clays in SBR with recommended compounding and mixing techniques to overcome such troubles as bad dispersion and high permanent set; great emphasis was placed on the need to use high shear rates and low temperatures during mixing. The symposium on white reinforcing fillers concluded with a survey of the properties and applications of 'Calpat' activated calcium carbonate from the time of its introduction during the early 1940s up to and including the latest trends in rubber technology.

Automation

The series of talks on Saturday May 23 were, with the exception of Dr von Spulak's description of the Agfa-Vulkameter, given by Swedish authors and consisted of information about automatic valve systems for presses by K. Furenäs of Stig Wahlström AB, automation in regulating processing operations by L. Bäckelin of Ingeniörsfirma Hugo Tillquist, automation in mixing and other machinery controls by Åberg of Regulator and Instrument A.B. Billman, and detection of metallic substances in such things as extrusions by means of electronics by T. G. Charles of ASEA.

In addition to the presentation of papers, a film taken at Bunafabriken Hüls was shown.

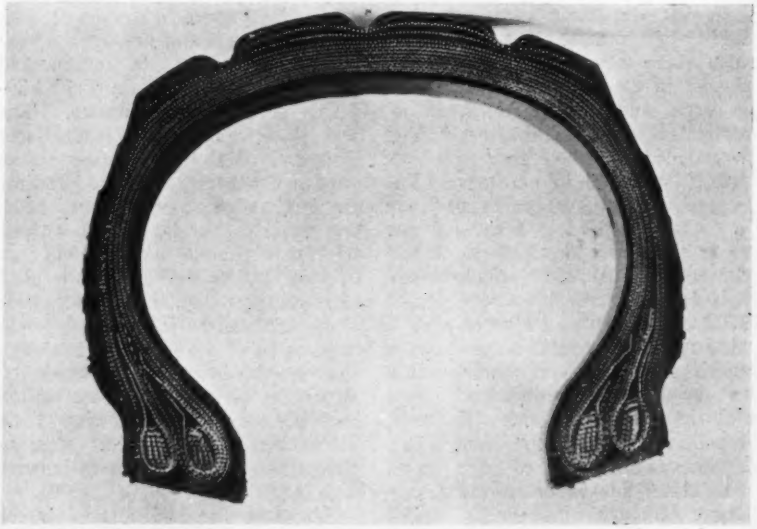
The whole proceedings were under the direction of the chairman of the SGF, Mr B. Sarno, whose efforts, plus the equally tireless activities of his assistants, Mr C. Nordenskjold and Mr E. Jonsson, ensured the success of both the formal proceeding and the excellent dinner which rounded off the meeting. Attendance was in the region of 150 people representing at least eight countries.

Plant Lining Group

At the annual general meeting of the Plant Lining Group of the Federation of British Rubber and Allied Manufacturers, held in London on July 17 1959, Mr T. H. Brooke, managing director of Redferns (Bredbury) Ltd., was re-elected chairman for 1959-60. Mr A. E. Allcock, of the Dunlop Rubber Co. Ltd., was elected vice-chairman.

Members of the Plant Lining Group are: BTR Industries Ltd., Dexine Rubber Co. Ltd., Dunlop Rubber Co. Ltd., Nordac Ltd., Redferns (Bredbury) Ltd., St. Helens Cable and Rubber Co. Ltd.

With effect from August 31 the London office of the British Industrial Plastics Group will be at Haymarket House, 28 Haymarket, London, S.W.1. The company's present offices are at 1 Argyll Street, London, W.1.



The high take-off and landing speeds of jet aircraft have inspired a major extension of the Goodyear aviation products range. This is the introduction of fabric reinforced tread tyres. The principle advantage of the new tread construction is that a greater number of landings can be obtained on high-speed aircraft. A fabric reinforcement has been introduced in the tread in such a way that it follows the moulded contours. High landing speeds restrict the amount of skid depth which can be applied—if the danger of tread throwing is to be minimized—but reinforcement with fabric enables the tread thickness to be increased by as much as one-third compared with the conventional tyre

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Tyre Study

NEW TEST METHOD

DETAILS of a new test method for the study of tyres were given at the recent Paris Tyre Symposium (*RJIP*, June 20 1959) by Dr K. Kollmann of the Technische Hochschule Fredericiana, Karlsruhe, Germany.

New tyre test machine still under development at the Technische Hochschule, Karlsruhe. The picture shows a passenger car wheel and tyre in position for testing

The machine consists essentially of three parts, the hub, the spokes and the rim. An octagonal axle is firmly fixed to the shaft of the fly wheel supported on oscillating bearings. The triple bearing of the large hub takes the greater part of the forces of deformation. The greatest deformation, in spite of the relative thinness of the shaft, is 0.005mm. The use of three pressure discs enables mounting to take place on the shaft without keying and with precise adjustment. A single one of these discs will withstand a torsion moment of 4.150 mkg. The hub is connected to the drum by means of spokes.

This type of construction is easier to realize than that of the disc mentioned in the earlier part of the lecture and it is also more rigid with the use of thin elastic spokes of circular section. The hub and the spokes may be welded together before fixing the rim of the drum.

To avoid air resistance at high speeds, it is necessary to consider covering the spaces between the spokes. The running surface is 56 centimetres wide and is welded to the drum. The whole of the periphery is fixed to the spokes by means of bolts fastened with cotter pins; this avoids the need for welding the two parts together and allows the hub to be carefully centred in relation to the testing surface.

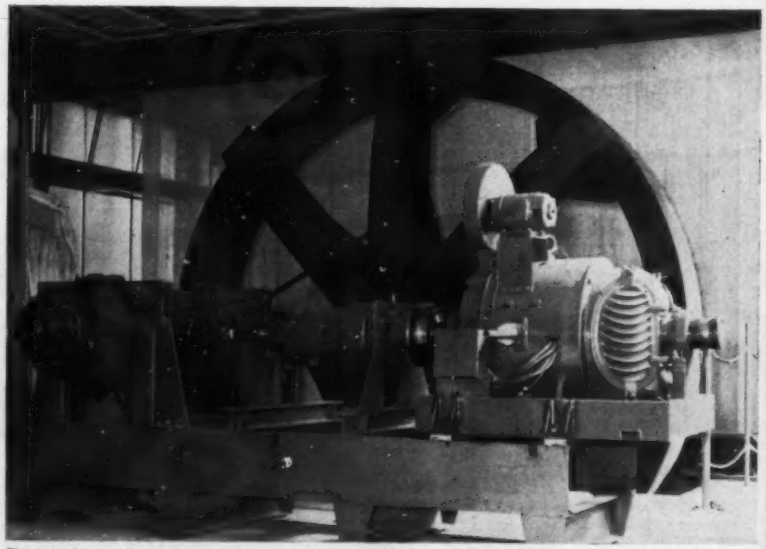
In spite of the large dimensions of the apparatus when set up the static balance at the end of a spoke does not exceed 5 kilograms.

The test wheel has the following dimensions: External diameter 4.30 metres; diameter of the track 3.80 metres; width of the track 0.56 metres; weight of the drum 7.50 tons.

The drum is activated by a Ward-Leonard continuous current machine; this can act either as a motor or as a generator and hence can either drive or brake the drum. Between the motor and the shaft there are two reduction gears in series, each having five different ratios. The greatest reduction is thus 50 to 1 and the smallest 6 to 1. By means of these arrangements the circumferential forces produced at the surface of the drum are identical with those found on the worst roads with normal cars, racing cars or lorries. The wheel under test is also driven by another continuous current Ward - Leonard machine of 110 kilowatts at 1,500 rpm with a gear box giving five different speeds by means of which moments of rotation up to 400 mkg may be obtained.

The driving motor and the gear boxes are integral with the chassis in order to allow different modes of suspension of the wheel to be included as part of the test.

The death has occurred in Christchurch, New Zealand, of Mr H. G. Miller, 64. Born in Pennsylvania, he spent his life in the Firestone rubber organization in many parts of the world and went to New Zealand in 1930 as managing director of the New Zealand Firestone Co.



Rear view of test machine showing equipment including gear assemblies and gear change mechanism and the main drive motor

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International Plastics Convention

1 — DESIGN TRENDS

THE growing concern of the Plastics industry with the challenge of good industrial design was reflected in the International Plastics Exhibition and Convention at Olympia, London, on June 17 to 27. The former included an international design display with selected consumer products from 12 countries, while one session of the latter was devoted to 'Design Trends.' There was a distinguished platform. Paul Reilly, Deputy Director of the Council of Industrial Design, presided, and Professor Ernesto Rogers, Count Sigvard Bernadotte and Robin Day were billed to speak for the state of the art in their respective countries—Italy, Scandinavia and the UK. The speakers did this, but their individual approach to their assignment was such that between them they provided the audience with a comprehensive and integrated conception of this comparatively new form of artistic expression.

Professor Rogers expounded the basic philosophy of good design which he suggested applied with equal validity to a spoon and to a city. He put forward his ideas by a critique of contemporary thought and practice in this field. Nowadays, he said, it was very difficult to guess the nationality of an object. This was not, perhaps, such a serious criticism of industrial design as it was of modern architecture. After all, tradition was not so important in the shaping of a spoon as it was in town planning. The function of a spoon and a fork was much the same in Rome as it was in London—spaghetti apart! But insofar as problems varied in different parts, they must be resolved in different ways.

The attachment to tradition must not lead to a reactionary attitude in which the designer was anchored to the past. It should not result in the ill-considered use of new techniques and materials in old-fashioned ways. Equally the designer must guard against technique as an end in itself. He must not confuse his own caprice or exhibitionism with true beauty. His supreme objective must be the synthesis of such beauty with utility.

Robin Day, who has very recently been elected as a Royal Designer for Industry, addressed himself to a more direct consideration of good and bad design in plastics. He detected clear improvements in standards of industrial design. 'Design' had now passed through the phase of being regarded as some kind of eccentricity and had achieved 'respectability.' They now had to correct bad industrial design rather than point out that an object was just old-fashioned. He attributed this evolution largely to the influence of the Design Centre and to the Women's Magazines.

Moulded Plastics

Moulded plastics gave very great scope for intelligent design even though the materials themselves were rather dead and soulless as compared with such vital stuff as timber. It was their flow which had great potential. Nevertheless the designer must keep his feet on the ground and remember mundane considerations such as the fact that curly shapes cost more than simple ones.

Mr Day went on to discuss his ideas with reference to various articles, illustrated by slides. For example, a clock case showed the vulgar effect created by decorations which bore no relation to the object. The 'knobs and twiddles' simply had no reason for being there. The shapes evolved for other materials, for instance the jointing in wood, should not be mechanically carried over to plastics design. Very simple forms, he thought, were sometimes rather negative and geometrical shapes often denied the identity of plastics materials. The enunciation of these principles probably did not provoke disagreement but his comments on individual articles, such as radio-cabinets, fuse boxes, chairs, cups and saucers emphasised the subjective nature of many of the impressions.

This was borne out by the fashion element in design. What was very daring at the time of the Festival of Britain 1951 was now quite ordinary. The current *avant-garde* were much more attracted to the angular and austere.

The speaker ended by discussing the trends in laminated decorative surfaces. He thought that the patterns now being used were becoming more aggressive. They were moving away from the linen, fabric and wood grained effects which were essentially foreign to them, to new designs which reflected their own identity. These surfaces were now reaching maturity and dignity.

In spite of the very advanced and attractive examples of industrial design which Count Bernadotte brought from Scandinavia, the notion of industrial design was apparently a recent one there. New associations had been established to press its claims. They point out that the cost of design was the smallest of all the elements making up the final price. It formed a small proportion even of the cost of advertisement, and was well worth while.

The designer served two masters and must balance the demands of the idealist with the limitations of commercial necessity. The Scandinavians, said the speaker, appreciated quality in applied art, but while the industrial designer must see ahead he must not rush so far forward as to jeopardize commercial success.

The many examples of Scandinavian work included street lights, hanging shelves and cupboards, a lorry, a hearing aid disguised as or combined with spectacles, cutlery packaging, trade marks, computers and many other articles.

Contributions to the discussion after the three speakers seemed to be confined to practitioners of the art. No engineer, for example, joined in the fray. There is still some way to go before industrial design ceases to be the exclusive preserve of the expert and really becomes an integral part of the production process.

Blow Moulding Polythene

A study of the physical characteristics of blow moulded polythene bottles and the related process variations were discussed in a technical paper by R. L. Wechsler and T. H. Baylis of Union Carbide Corporation, USA. The presentation was made before the American Society of Plastics Engineers' Annual Conference.

A copy of the paper is available from the Plastics Department, Union Carbide International Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N.Y., USA.

Mr Gilbert Dodd, of Monsanto Chemicals, has been appointed a director of R. H. Cole and Co. Ltd.

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PLASTICS AT WORK

Continued from page 7

the Dior Works; the storage tanks at the Cointreau Works at Angers; the SO 4H2 pipelines systems at the Shell refineries at Petit Couronne; the Trefuilleries du Havres for use with the nitric acid at the wire works; the vinegar and oil storage tanks at Conserveries; at the Kuhlmann works for the HCl storage tanks, and at the Houilleres du Bassin for the storage of demineralized water; at the Vinaigrerie Oranaise for the storage of vinegar and at La Girondine at Bordeaux for the bulk storage of cognac. From these examples it can be assumed that similar corrosion and storage problems exist in similar types of industries in the UK.

Tanks and Valves

Also displayed on the stand of Anisa were a wide range of moulded tanks and containers with thicknesses from $\frac{1}{16}$ to $\frac{1}{8}$ of an inch with capacities of between 20 and 500 litres, all of those tanks being reinforced at the edges. None of these seemed to be of any particular difference or have any qualities which were outstanding, most of them being of similar design to the wide range of tanks on show at the stand of Rosedale at the International Plastics Exhibition in London. Also at this stand were displayed a range of PVC valves with an all moulded body and working on the same principle as the English equivalent PVC valves; the quality of the moulding and the appearance of these units was good but the price structures appeared to be extremely high. For example, a flanged inch bore valve costs ex works approximately £7, the 2½in. which is the nearest equivalent to the English 2in. costing approximately £14, very high by English standards and offering nothing in the way of new design. Generally speaking the price of the polythene containers and tanks were also similarly high in comparison.

Apart from these individual companies mentioned there were many interesting examples of PVC in the form of fabricated shapes. In particular there were some fume scrubbing units on show of a very complicated design and illustrating very clearly the technical possibilities for PVC. The stand of Trefimetaux drew a considerable number of visitors due to the novel technique used to demonstrate what can be produced in clear PVC rigid sheet. The stand was laid out in the form of a small breeding station for the culture of live salmon and there were various sizes of clear PVC tanks, each tank showed progressively the development of the fish from spawn, with the largest tanks showing salmon of about a pound weight swimming about and ready to be transported for stocking of rivers. Although this was a novel display it appears that this type of tank is, in fact, being used throughout France for the culture of various fresh water fish, one of the great advantages being that the tanks do not fur-up and also it is possible to observe the progress of development of the fish at each stage. The tube and sheet from which this breeding station was constructed is made by La Compagnie Français des Metaux under the trade name of Plastmet. This material, based on PVC without plasticizer and from which can be produced in rigid form tube, sheet, solid rod and welding rod, is available in red opaque or slightly translucent colours. The surface is polished and clear. These sheets are available in 850 by 2,800mm. sizes with thicknesses up to 20mm. and in smaller sheets of 700 by 800mm. in thicknesses up to 50mm.

Summary

Generally speaking, this exhibition showed very clearly what is being done in the field of plastics engineering in France and there were many interesting examples of plastics at work. From the point of view of the chemical engineer, the works engineer, plant designer and the laboratory equipment producer, this exhibition was of great interest and value. A great deal more space was given to the fabrication of plastics than at the International Plastics Exhibition in London where proportionately speaking very little was shown of what is being done in this field.

The overall impression is that PVC is far more widely used than polythene in fabrication in France, but there is a tendency especially since the introduction of high density Polythene for plants to be made in this material. The range of fittings available for pipes and tube systems is very extensive in PVC but this is not the case with polythene. Conversely, in England there is a very much wider range of polythene fittings and, proportionately speaking, a wider range of PVC fittings although a number of those on sale in England are of Continental manufacture at present. To some extent it may be true to say that the more extensive use of plastics in chemical engineering in France is linked with a national approach to problems which is less cautious than in the UK. Also perhaps in England there is an element of over-caution which may explain this differentiation. In the writer's opinion the Paris Exhibition was of greater interest than the Olympia Exhibition for those interested in large scale chemical plant and related equipment constructed from plastic materials.

NEW JOHN BRIGHT CHAIRMAN

MR. FRED TRAIN, managing director of John Bright and Bros. Ltd., Rochdale, since 1942, has been appointed chairman of the company and its subsidiary, James Stott Ltd., Oldham, in succession to Dr E. P. Andreae, who has relinquished the position because of advancing years but remains a member of the board.

Mr Train joined John Bright and Bros. in 1922 and was appointed a director in 1929. In the same year as he was appointed managing director he succeeded to the chairmanship of Scott, Whitworth and Rayner Ltd. He was appointed a director of James Stott Ltd. in 1955 and became managing director of that company in the following year. He was appointed deputy chairman of John Bright and Bros. and of James Stott Ltd. in 1956.

FRED TRAIN, new chairman of John Bright and Brothers

A member of the Council, General Purposes Committee, Establishments Committee and Committee of Management of the Housing Association of RABRM, Mr Train is also an associate member of FBRAM, a manufacturing member of the IRI, and a member of the Appeals Committee of the Rubber and Allied Industries Educational Fund.

Mr Train is succeeded as managing director of John Bright and James Stott by Mr A. W. Marcroft.

Mr R. L. Levett has been appointed a director of the Woodend (Kelani Valley Ceylon) Rubber and Tea Company in place of the late Lt.-Col. C. W. S. Gardner.

Now see here....

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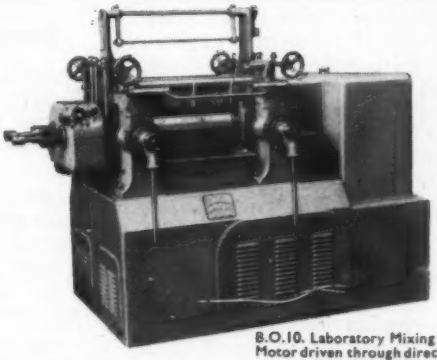

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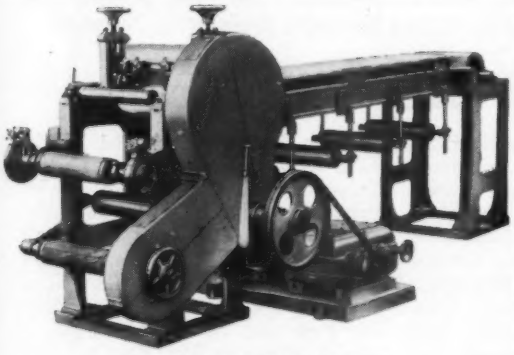

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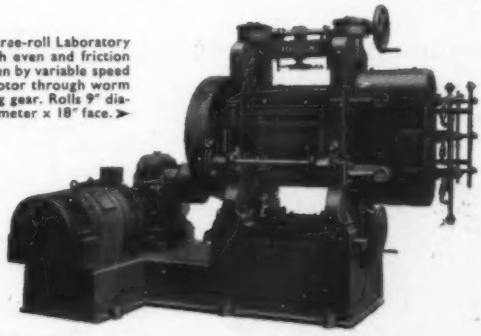

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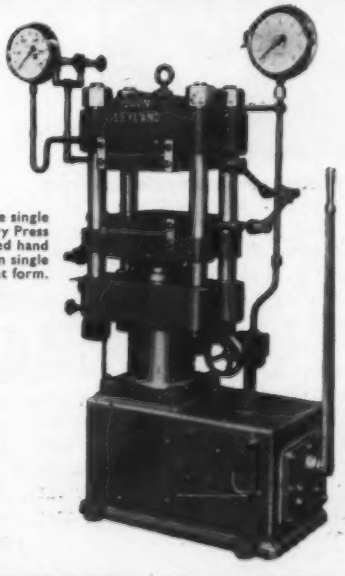

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European Plastics Expansion

OEEC FORECAST

THREE working parties of the OEEC Chemical Products Committee, which met in Paris recently to review the position and prospects, have predicted further expansion in the field of plastics, petroleum chemicals and dyestuffs in 1959/60.

The Petroleum Chemicals Working Party reported that two more countries, Belgium and Denmark, began producing petroleum chemicals in 1958. Investment is expected to rise even more rapidly to over $1,600m. by the end of 1961, when a further country, Austria, will have set up a petroleum chemical industry.

The total carbon content of petroleum chemicals produced in member countries rose from some 630,000 tons in 1957 to 813,000 tons in 1958 and it is expected to increase by a further 50% to 1,225,000 tons in 1959.

This growing level of production will require five million tons of liquid or gaseous feedstock. Products where output will be appreciably expanded include synthetic rubbers of various types, plastics materials — mainly polythene and polypropylene, ethylene oxide derivatives and solvents.

The rate of expansion in the plastics materials industries was slightly lower in 1958 than previously but in view of the large investments, it seems likely that output will continue to expand.

Presses for Russia

Overseas orders totalling almost £140,000 are announced by the Metal Industries Group's engineering subsidiary, Fawcett Preston and Co., of Bromborough, Cheshire.

Biggest of them is for nine pulp-steeping presses and two fibre-baling presses which will be incorporated in the rayon plant which Courtaulds Ltd. are building for Russia.

The other orders comprise extrusion machinery for Pirelli of Naples, Nordiske Kabel Fabrieken of Copenhagen and the Holland Insulated Wire and Cable Co. of Amsterdam.

Rupert T. Cooke

R. T. COOKE

Mr Rupert T. Cooke who was in his 84th year, died on June 12. He was a director of Francis Shaw and Co. Ltd. for 57 years and chairman for 30 years. He did much in his early days to support the growth of the rubbber plantation industry.

Unique Contribution

Mr Cooke also made a unique contribution to the growth of Francis Shaw and Co. Ltd. and played an important part in the field of engineering for the rubber industry over the past 60 years.

In later years, in addition to travelling extensively in America, where he had many friends, and in other parts of the world, he took active part in the affairs of the Institutions and Trade Associations connected with the Rubber and Hydraulic Engineering Industries.

Firestone Appointment

Mr William E. Duck, Company chairman, has announced the appointment of Mr A. D. Wenzel as managing director of Firestone Tyre and Rubber Co. Ltd., England.

A. D. Wenzel, new managing director of Firestone

Mr Wenzel, who has been associated with Firestone for nearly thirty years, has recently relinquished his position as Managing Director of Firestone Tyre and Rubber Co. of India, Private Ltd., to undertake his new assignment. Mr Wenzel, who has spent twenty years in India, is largely responsible for the important position Firestone now holds in that country.

Hytex Dinner Dance

The 13th anniversary dinner dance of Hytex Ltd., rubber moulding manufacturers of Latimer Road, London, S.W.10, was held on July 3 at the Café Royal, London, when Mr A. S. Parr, managing director of the company, and Mrs Parr received upwards of 100 guests. This is one of those occasions that regularly achieves the impossible for each year, somehow, the event surpasses past successes. As on previous occasions, the gathering included executives and employees of the company as well as business and industry associates.

In his speech proposing the toast of the company Mr Parr referred to the wholehearted co-operation of all members of the company which had made possible not only their continued growth but a successful year. He went on to speak of the essentially 'family' nature of the business which was still maintained in spite of expansion.

They had with them that evening, said Mr Parr, a number of guests to whom he would like to make particular reference. There was Charles Meadows, of Charles Meadows (London), Ltd., and Mrs Meadows, whose business was in Torquay, and who had come to London for the occasion. He was glad also to welcome Leonard Crossland of the Ford Motor Co. Ltd., and Mrs Crossland; Ralph Patterson of W. Patterson and Co. Ltd., and Mrs Patterson; J. E. Davis of Lewis Gilder Ltd., and Mrs Davis and Miss Jennifer Davis; and Roy Glanvill, of Wey Equipment Ltd. Concluding, Mr Parr said he wished to pay a special tribute to Mrs Parr not only for her great efforts to make the evening a success but also for her contribution to the success of the company.

In a brief response, Mr Noel Hillson thanked Mr and Mrs Parr on behalf of the guests for a wonderful evening.

Dancing, until well past the scheduled hour for carriages, and an entertaining cabaret show completed a pleasant and memorable evening.

Terylene Display

'"Terylene"—a British achievement,' a selective exhibition of well-designed goods illustrating the many different uses of 'Terylene,' will be on show at The Design Centre, 28 Haymarket, London, from August 17—September 12. The exhibition is organized in association with Imperial Chemical Industries Ltd.

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VIEWS and REVIEWS

Rubber v. Plastics, continued

IN the last issue of 'Views and Reviews' the relative values of rubber and plastics (as discussed at a panel debate of the Montreal Rubber and Plastics Group) was confined to the floor tile industries. Today a brief survey of the remarks of the panelists on Rubber and Plastics in the Footwear Industry is put forward.

Rubber in Footwear

Mr Hugh Beland (Dominion Rubber of Quebec, Canada) commenced by remarking that while in items of clothing in general use today it seems that plastics are beating rubber 4 to 1, this cannot be applied to footwear.

Factors Favouring Rubber

For rubber there are the physical properties required for good wearing waterproof footwear: *viz.*, For the upper good tensile strength, high elongation and low permanent set, for fit and appearance are essential, and a 'high tear' is of the utmost importance.

In the case of a rubber shoe the physical properties noted above can be obtained easily with a relatively inexpensive compound containing about 45 to 50% total R. hydrocarbon. Loading will be about 20 to 30 parts of c.b. for a black upper, and the same quantity of a white reinforcer for light coloured uppers. A first quality upper costing 18 to 20c. per lb. can be compounded for a tensile of 2,000 to 2,500psi, and E. of over 500%, and with a low set (10 to 20%) and a tear strength of over 150lb. per inch, and a second grade upper at about 14 to 16c. with adequate physicals, can be produced.

As regards soling, low priced materials are also available and good abrasion resistance can be obtained with rubber with stocks at 10 to 15c. per lb.

Another point is that a great variety of styles and compounds for specific purposes can be produced either with NR or SR.

If we replace rubber with plastic, strength and E. are satisfactory, but elasticity is poor, and therefore it is extremely difficult to obtain a suitably low set. Comparing abrasion, rubber can be reinforced, but this is not so with plastic. Another bad feature of plastic is its poor resistance to cut growth, and as regards cold resistance rubber is excellent, but the maximum flexibility of plastic is around −10 to −20°F., *i.e.* some 20° higher than the temperature at which rubber remains flexible.

Plastic appeared to come to our aid when a transparent, colourless shoe was required, but alas!, it was found that after a few weeks, the beautiful, colourless shoe became soiled. When we come to all round cost (figures given) we find that plastic material is nearly twice that of rubber.

The most important advantage of plastic is the low labour cost, due to slush moulding, and capital plant investment is also much lower for plastic, but if we were to replace the total production of rubber footwear by plastic (in volume) we should have to lay off about 90% of our employees. Mr Beland concludes: 'Of course, there is no reason to stop progress if a much superior product can be obtained; and if this were the case, we should be under a moral obligation to develop new products and new processes to take care of the unemployment situation. . . . I have to concede that plastic has its place in our footwear industry, but it cannot replace rubber.'

Plastics' Advantages

The broad lines of the argument in favour of plastics are based on superior processing advantages. It does not appear that the advantage of rubber as regards materials cost has been met, but overall, where a comparison is possible, this seems to be the case. On the other hand, some of the disadvantages of plastics as mentioned in the argument against these, seem to have been overcome, according to the data given by Mr A. Beverly Lewis. Thus, as regards abrasion resistance he says: 'One criticism of plastic footwear is a tendency to slide. It is true that vinyl compounds are slippery and that they have a low coefficient of friction, but for that very reason they also have excellent abrasion resistance. On the type of abrader we use for testing, the plastic material runs several times better than an average rubber footwear compound.'

As regards low temperature resistance (hardening: low temperature effects) Mr Lewis says: '. . . Now granted, the plastic shoe also becomes hard, but steps have been taken so that today the question of low temperature cracking is pretty well non-existent in plastic footwear.'

In the above I have essayed to give the merest sketch of the rubber v. plastics footwear question as contained in the arguments advanced by both sides. However, in regard to footwear so much depends on conditions of climate, of surface attributes, on fashion, in addition to direct physical and chemical qualities and attributes, that broadly, comparisons, except on some obvious points, are extremely difficult. For example: Has anyone yet devised a material which is non-slip on wet or muddy grass, and also on dry grass of various kinds? Well, just ask an experienced golfer the next time you meet one! And, *if* (!) the answer is in the affirmative, continue by extending the questionnaire to frozen surfaces of various kinds, to ice, to greasy or wet bitumen and asphalt, and so on. And then, of course, we have such attributes as comfort (including the breathing or non-breathing material) cost, and seasonal changes!

From the more than three pages of Questions and Answers in the Rubber Age report (*you should study these!*) I select one on a (or the) *vital* question: *The*

COMMENT ON SCIENTIFIC AND INDUSTRIAL MATTERS

by **DR SCHIDROWITZ**

question was: 'How does a layman make a choice between rubber and vinyl?'

To this Mr Lamb's answer was: 'It depends on what qualities he wants, whether it be resilience, quietness, safety or appearance.'

Mr MacLaine added two attributes to the above answer, namely: (1) The amount of money he wants to spend, and (2) Particulars as to the locality of wearing (*a basement, a playroom, if not where wear is to be heavy;* is it to be decorative, etc.?).

Economics of Corrosion

In 'Views and Reviews' of June 20 (the last issue of RUBBER JOURNAL AND INTERNATIONAL PLASTICS before the printing stoppage), the first item was headed 'Economics of Corrosion,' which was a note on a lecture delivered by Mr A. Keynes to the Corrosion Group of the Society of Chemical Industry on the 'Economic Aspects of Corrosion,' based on a report of the said lecture which appeared in *Chemistry and Industry* of May 30 1959 (p. 666 *et seq.*).

On July 28 I received from the Editor of *RJIP* a copy of a letter from Mr Keynes, dated July 23 1959 which was as follows:

My attention has been drawn to your note on my lecture to the Corrosion Group of the Society of Chemical Industry, and I would be grateful for the opportunity of answering. First you are not reviewing my lecture but a very abbreviated report of it. True, I edited this, but one piece of nonsense about 'Corrosion prevention effecting a reduction of our exports' escaped my eye. What I did say was that more effective corrosion prevention would improve our Balance of Payments in three ways: (1) By reducing the 'import-content' of our exports, thus reducing costs and prices and improving our competitive power. (2) By reducing the volume of imports retained for home use. (3) By avoiding the loss of 'goodwill' on the export of corroded products.

As for the part of the report you quote relating to the 'national economic aspects of corrosion control,' I certainly agree that 'it is all very intricate.' May I plead, however, that, in part at least, the intricacy arises from the limited length of the report and the fact that there are at least four separate points telescoped here. I don't know how well natural science lectures stand up to this kind of brevity, but Economics, sir, can't take it.

I must quarrel with you, however, on one point. You quote me correctly as saying that sometimes it is more economic to do nothing rather than something about corrosion, and then give as an example of this where I suggest that due to a number of technical and economic factors, perfection in the cathodic protection of ships was not the need, but rather a combination of x% protection for no longer than y years. This is surely not a case of doing nothing, but rather one of the far more frequently occurring cases in corrosion economics, of choosing one of the various somethings that might be done.

Mr Keynes' letter speaks for itself, and I much regret that there was some inaccuracy in my note, one reason for which, as indeed is indicated by Mr Keynes, being that I was reviewing, not the lecture as a whole, but only a 'very abbreviated report of it.'

May I say that I decided to review the report of Mr Keynes' lecture because, first of all, I think that the subject of corrosion is one that interests, or should interest, all of us. Secondly, the report appeared to me to be interesting, informative, and stimulating.

With regard to the first paragraph of Mr Keynes' letter, I note his remarks with great interest. Students of the subject will, I am sure, be grateful to Mr Keynes for the correct version of what he did say on this subject, as given by him in his letter.

Coming to the last paragraph of Mr Keynes' letter, I fully accept his correction. My inaccuracy in this matter was due to my putting forward inadvertently, in illustration of a general principle, an example which was irrelevant.

I trust that Mr Keynes will accept my apologies for the shortcomings in my note on the report of his lecture in *Chemistry and Industry*.

Continuity of 'Views'

The printing stoppage has made a sad inroad on my continuity record of (rather more than) 39 years relating to the appearance of 'Views and Reviews' in *India-Rubber Journal*, next *Rubber Journal*, and (now) RUBBER JOURNAL AND INTERNATIONAL PLASTICS.

As mentioned previously, this continuity had only been broken once before, when during the last war one issue went minus 'Views,' apparently due, not to any fault of the writer's, but (probably) as the result of the destruction of a pillar box.

Notes

Anchor Chemical Co. Ltd have issued *Bulletin* No. 143/R/59. This describes TY-PLY *Rubber to Metal Bonding Agents*, constituting a brochure (*ca.* 9¾ x 8) covering some 10 pages of information, including a description of the properties of the four grades (for 4 specific purposes) of Ty-Ply available for bonding NR and SBR compounds to metal during vulcanization, for bonding neoprene and hard nitrile compounds for do., and for bonding nitrile type compounds also to metal, during cure in each case. Bonding butyl compounds was described in *Bulletin* 124/R/55. Processing is described in detail. There is also a section suggesting compounds for use with Ty-Ply, and a Table of the nature of the adhesion of various metals to various rubbers as a result of application by means of the adhesive, and finally, a page describing various Applications for Ty-Ply.

PHILIP SCHIDROWITZ

French Butyl for Australia

Butyl rubber, now being produced by the Société du Caoutchouc Butyl (SOCABU), is being imported into Australia. Sole distributors for SOCABU in Australia and New Zealand are Harrisons Ramsay Pty. Ltd., Charter House, 4 Bank Place, Melbourne, C.1.

Questions Corner—78

(Second Series)

331. Polyvinyl formal is used for enamels and as moulding powders for various applications. Give some account of this polymer.

332. Methyl cellulose is used in a number of applications in the plastics and other industries. Give some details.

333. What are the essential ingredients of a nitrocellulose lacquer?

334. Why are breaker plates and screens used in extrusion machines?

(Answers next week)

Answers to Questions Corner—77

327. As used by the lacquer manufacturer nitrocellulose is damped with at least 30% industrial methylated spirit or some other damping agent. In such a condition it is no more dangerous than the inflammable solvents used, provided reasonable precautions are taken. The main precaution to take is that of preventing the nitrocellulose becoming dry. Dry nitrocellulose is easily ignited by sparks, friction, flame or static electricity and burns very rapidly with intense heat.

The nitrocellulose should be stored away from rooms where manufacturing processes are carried out, and preferably the room should not be used for any other purpose. It should be kept under lock and key and only authorized persons allowed to enter. Adequate means of escape, as well as suitable means of extinguishing fire, must be provided.

Containers should not be stored in tiers and no force should be used in opening them. Tools should be of brass or some non-sparking material.

All electrical fittings should be explosion-proof and wiring, as far as possible, external. Switches and fuse boxes should also be outside the building. Electrical motors should be in separate rooms, and if they must be located inside the building they must be of the explosion-proof type.

In storing inflammable liquids the buildings should also be isolated and storage tanks below ground if possible. Small drums could well be stored in the open air.

328. Some thermoplastics are very hygroscopic and others only slightly. In any case, the percentage of moisture in the material being extruded is very important and the amount should not exceed a very low figure otherwise there may be a number of faults arising, *e.g.*, the worst one being the formation of steam bubbles in the product.

Cellulosics and nylon must be dried thoroughly before extrusion as they pick up moisture very quickly.

Polystyrene also has a tendency to pick up moisture on the surface of the granules, and it may be necessary to dry. PVC and polythene do not normally absorb moisture and can usually be extruded as received from the manufacturer.

It should also be noted that although the basic resin may not be hygroscopic some of the compounding ingredients used in a particular compound may be and therefore the question of drying will have to be considered.

A great deal of time can be saved by storing in a warm room, but in addition there are several methods that can be used and there are a number of firms that specialize in drying equipment for this purpose.

The simplest method is an air-circulating oven, maintained at a controlled temperature, containing a number of shallow trays.

Another method is to pass the material down a vibrating chute in a very thin stream and dry by means of a bank of infra-red lamps located over the chute.

329. Basically there are three types of heating that are used for extrusion machines, the most popular being that of electrical heating. Fluid heating and steam heating are also used.

Electric heating has much to recommend it as it is clean, easily maintained, economical and efficient over a wide temperature range. Usually resistance band heaters, or induction heaters, are fitted round the outside of the barrel and die. The heaters on the barrel being controlled in zones so that a temperature gradient may be obtained from the feed end to the die head.

There are several electrical control systems including manual, 'on-off' and proportional methods. The manual control system utilizes a rheostat or Variac-type transformer, and a temperature measuring device which indicates the temperature under control.

A similar method uses the Sunvic-type regulators, but difficulties can arise with this system if the extrusion process is interrupted because, irrespective of the changes in the condition of the material inside the barrel, the regulators continue to supply the same amount of energy. However, the system is used quite successfully for long runs in the hands of competent operators.

The 'on-off' system depends on the operation of a device which switches the heaters on and off as the temperature, indicated by a thermocouple or temperature sensitive element, rises or falls below the temperature at which it is set.

The proportional controller depends on the control instrument gradually adjusting the power supply as the difference between the set temperature and the indicated temperature varies.

Oil is commonly used for fluid heating and the system consists of a heater, circulating pump, surge tank, filter and heat transfer channels in the extruder barrel.

Steam heating is not very popular today owing to the high pressure steam required to permit temperatures up to 300°C. that are required for the extrusion of some plastics.

330. During polymerization a polymer chain would continue to grow until another free radical entering the particle resulted in mutual termination, and the molecules thus formed would be very long. This would result in the formation of polymers of high molecular weight which are increasingly difficult to process as the molecular weight increases.

Control of molecular weight is very important and this may be achieved by the use of substances which are known as modifiers.

Many materials have been tried, including mercaptans, sulphur, selenium, thiuram disulphides, carbon tetrachloride, amines, and so on. (C.I.O.S. File No. 111-19; Ind. Eng. Chem., 1947, *39*, 210.)

Of these, the mercaptans have proved to be the most useful and they have the added advantage that they act as chain transfer agents, *viz.*, the polymer chain is terminated by the active H. of the mercaptan and the RS fragment is a free radical capable of initiating another chain.

The efficiency of a modifier is expressed as a function of the molecular weight of the polymer produced at a given conversion for a fixed amount of mercaptan. (J. Pol. Sci., 1947, *2*, 82.)

The efficiency and rate of disappearance of a modifier depends on: a, the inherent rate of reaction with the growing free radicals; b, the rate of diffusion to the locus of reaction.

(More questions next week)

'Take-off reel? Why, that's a Scottish strip tease'

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WHEREVER OIL MEETS RUBBER — HYCAR MEETS THE NEED

MEN and MATTERS

A Review of People and Events

by George A. Greenwood

SO we meet again! An attempt to catch up with all that has happened during the past couple of months over a situation for which neither the Journal nor I was responsible, would be quite impossible now. Let us, therefore, look upon two or three of the real highlights which have come into the horizon during that period, and otherwise concentrate on events and occasions that are more or less contemporary.

There is, for example, the significant increase in the price of natural rubber. Many eyes must have goggled when there was a closing spot quotation in the City of 2s. 7⅛d. and the slight drop which was recorded a few hours before I began to write does not sensibly alter the situation. Of course, there is a natural reason for it all—the bigger consumption, and the much bigger buying, by Russia, and, it appears, more buying in this country.

An expert with whom I have been talking says it is certain that world needs of natural rubber will go on exceeding production for the rest of this year at least. That means the consequent running-down of stocks, and still comparatively high prices.

In plastics, too, output has reached a new peak, although sales have increased rather more slowly. This has meant, of course, a corresponding rise in stocks of most plastics.

Regarding plastics, I have been very much amused by a little display on the side by my old friend, Dr Barnett Stross, M.P., who represents Hanley in Parliament, and is a passionate protagonist of fine pottery and porcelain. He told his fellow M.P.s recently that plastic articles could never take the place of those produced by the kilns and the skilled labour of the pottery workers. But, oddly enough, within a day or two Miss Patience Gray, writing in *The Observer*, queried sceptically any prevailing notion that there is something unpleasant about plastic materials and asked what on earth makes one turn up one's nose (if one does), at a plastic teacup, or flinch from the feel of a plastic curtain? Miss Gray went on to declare that at the moment manufacturers are so busy extending the plastics field and performing chemical miracles that there has been no time to establish any kind of plastics aesthetic. The whole thing, she said, is in a kind of chemist's honeymoon stage. That rather appeals to me as a challenge to the industry. *Verb. sap.*

A Casualty

A few days ago I heard of an astonishing incident which occurred during the August Bank Holiday week-end, and which might easily have had more serious consequences. It concerns Mr J. W. A. (Alan) Calver, chairman of Wm. E. Calver and Co. Ltd., and so closely associated with the Rubber Estate Agency, as well as director or chairman of nearly twenty rubber-producing companies. Also, of course, he has for years been associated with the Rubber Growers' Association, especially in the role of a member of the Council.

It appears that Mr Calver, who is very much a countryman, and has a lovely house and grounds at Alciston, in Sussex, is especially a bee keeper. Mr Calver was attending to one of his hives when something apparently went wrong, and the bees swarmed on him and attacked him. He was so badly stung that for a little while it seemed that the attack might be fatal. Fortunately, within a matter of minutes, Mrs Calver was able to get a doctor to him, and they were able to get his pulse beating again. The latest I hear is that Mr Calver is going on quite well. But what an ordeal!

J. A. Reid, who has been appointed commercial director of Price's (Bromborough) Ltd.

The Exhibition

We can all agree that the International Plastics Exhibition at Olympia proved itself a great success. It aroused a considerable amount of interest amongst a large number of visitors quite outside industrial and commercial interests who must have gone because they wanted to see not only that infinite variety of things which are made from plastics, but also something of the processes which are employed in their manufacture. The Press, also, was generous in its coverage.

ISR Anniversary

Quite a number of anniversaries have come and gone during the 'shut-down' period. One of the most notable occurred on July 20. On that day one year ago the International Synthetic Rubber Company's Hythe, Southampton, plant reached full stream.

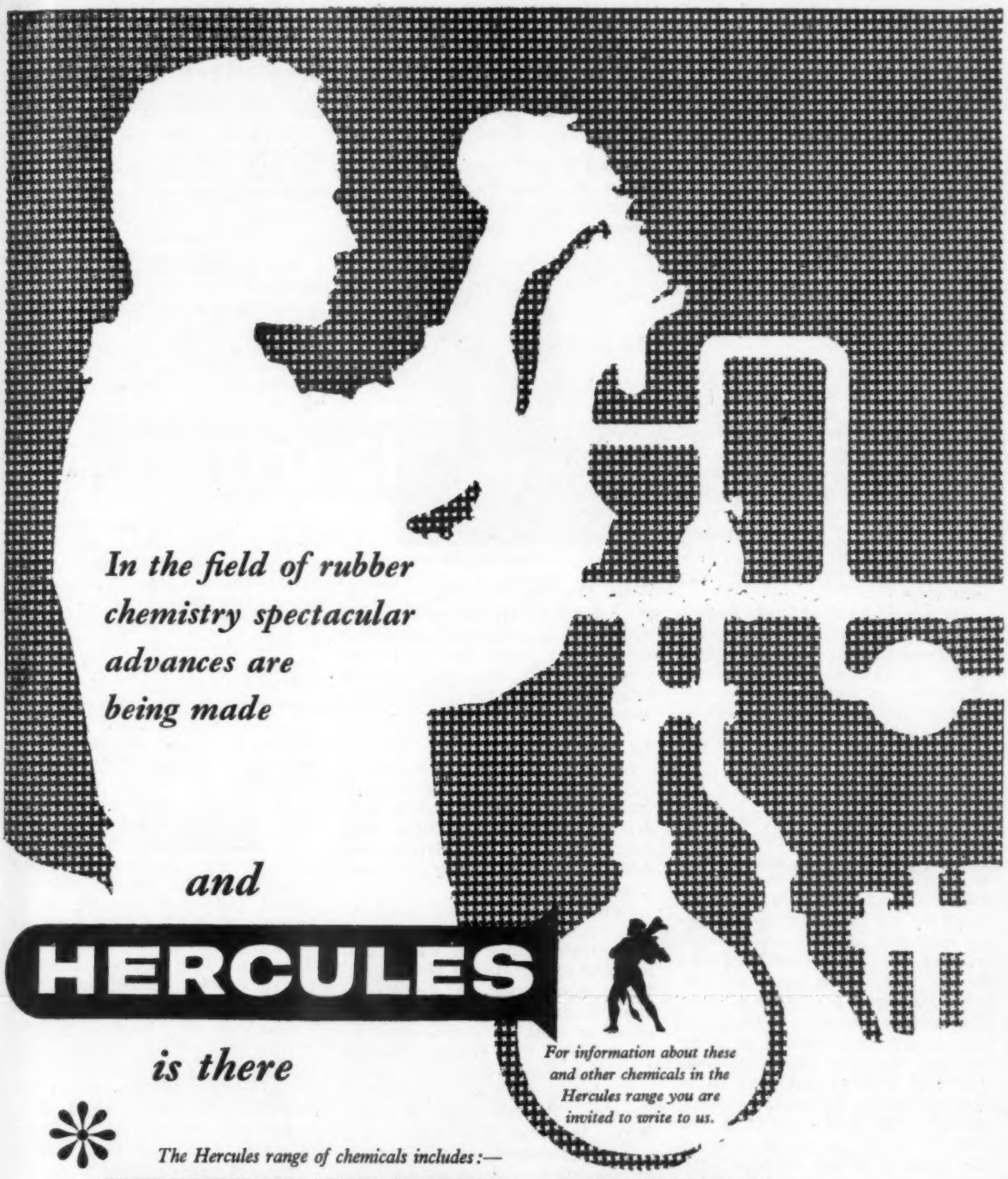
Already the £6m plant, most modern of its type in the world, has made tremendous headway. Intol (ISR brand name) synthetic rubbers are rapidly becoming known and accepted by buyers all over the world. They have been exported, in fact, to all major centres.

Another ISR event that it has been impossible to report took place in Paris last June. Then the Company entertained some 150 European buyers and agents on one of the Seine *bateaux mouches*. From some of those fortunate enough to be present, I hear that the party was a most successful occasion. The weather was kind, the Seine as beautiful as ever and the arrangements faultless. Among those present from ISR were D. A. Bennett, director and general manager, and Harry Hornsby, until recently commercial manager but now promoted to general sales manager.

Polymer Corporation Appointments

The appointment of G. Bracewell to the position of Comptroller, was announced today by Stanley Wilk, vice-president-finance, of Polymer Corporation Ltd., Sarnia, Canada.

Mr Bracewell first joined Canadian Synthetic Rubber Ltd., a member of the original Polymer project, as a cost accountant in 1943, and in 1949 transferred to Polymer Corpora-



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tion as accountant. In March 1953 he became manager of the accounting department, which position he held up to the time of his present appointment.

Further moves include the appointment of G. Redlich to the newly created position of manager, economics and development. This position has been established in order to co-ordinate the Company's business development and planning effort with Polymer's existing staff services. In his new position Mr Redlich will be responsible for business development matters, general planning, economic analysis and a wide range of staff functions.

This move has involved the reorganization of the economics and yield department under Mr Redlich's direction. D. J. Wormith is appointed manager of the planning and development department. W. R. Carson is appointed manager, operations analysis department and a Special Project Section is to be established to handle specific projects which have passed the preliminary development stage.

The appointment of David Anderson as production superintendent, petrochemicals, has been announced by L. D. Dougan, vice president-Operations. As such, he will be responsible for the steam and power plant, feed preparation, butadiene and styrene units.

Sharing the Profits

To the considerable and increasing number of companies which share profits with the staff and workers must now be added the London Rubber Co. Ltd. In a brochure just issued by the managing director we are told that the Prosperity Bonus arrangements which have operated for the past several years are now being put upon a permanent basis. The scale of benefit is being increased, and the plans that are being put into effect will enable the company now more properly and accurately to describe its system as profit-sharing. Its basis rests on a distribution of 4% of the net profit of the company in any financial year, after all charges, which I need not specify, have been met, and there are proper provisions in the case of retirement or death.

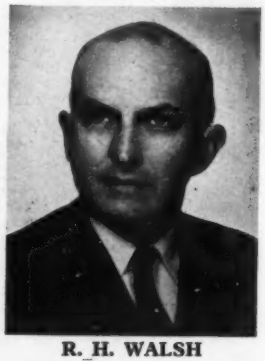
It appears to be a sound scheme and one that, while not involving co-ownership, will none-the-less have the blessing of the Industrial Co-Partnership Association.

Hytex Dance

I hear that guests at the recent anniversary dinner and dance of the Hytex Company are still remembering nostalgically the magnificent dinner arranged for them by Mrs Dodie Parr, wife of managing director Chris Parr, who, as before, was responsible for choosing wines and food as well as overall organization.

Du Pont (UK) Appointment

Mr R. H. Walsh has been appointed sales manager for synthetic rubber and other elastomeric products



R. H. WALSH

of the Du Pont Co. (United Kingdom) Ltd. In his new position, Mr Walsh will be responsible for direct and indirect sales, and promotion programmes for elastomer products being marketed in the United Kingdom and Europe.

To New Zealand

Mr S. P. Thompson, secretary of I.C.I. Plastics Division, has resigned from I.C.I. in order to settle in New Zealand with his family. He is being succeeded by Mr A. J. Barrett, now secretary, I.C.I. Heavy Organic Chemicals Division.

Sam Thompson joined I.C.I. in 1947 on leaving the Civil Service in India, where during the war he was Registrar of the Madras High Court. He is best known in the plastics industry for his untiring and enthusiastic work as secretary to the Trustees of the Plastics Industry Education Fund, and he is being succeeded in that post by Mr H. T. Kemsley, director and secretary, British Industrial Plastics Ltd.

The best wishes of his many friends in the plastics industry will undoubtedly go with him, and we, too, wish Sam Thompson *bon voyage* and many happy years with his family in their new home.

Spalding Retirement

A. G. Spalding and Bros. Ltd., subsidiary and Sports Goods Division of BTR Industries Ltd., have announced the retirement through ill-health of Mr F. A. Turner. A well-known figure in the sports goods trade, Mr Turner has served the Spalding company for 46 years—19 of them as a director—and his many business friends and associates will wish him a speedy return to full health and the enjoyment of a long and happy retirement.

Mr R. F. Sammell, late of the sports division of the Dunlop Rubber Co. Ltd., has been appointed general manager in succession to Mr Turner.

Mr F. W. Harper has been appointed a director of the United Lankat Plantations Co. Mr J. Morton has been appointed a director of the Soengei Rampah Rubber and Coconut Plantations Co. Mr A. L. Matthewson has resigned from both boards.

HAPPY BIRTHDAY

Birthday greetings to Mr D. Atkin (Cannon Rubber Manufacturers Ltd.) for July 1; Mr D. D. Stockley (Aston Technical College) July 2; Mr F. Cocker (Leyland and Birmingham Rubber Co. Ltd.) July 3; Mr P. J. Burgess (Rubber Growers' Association) July 5; Mr J. Frankenburg (Greengate and Irwell Rubber Co. Ltd.) July 7; Mr Howard Clayton-Wright (chairman and managing director, Howard Clayton-Wright Ltd.) and Mr P. G. T. Etherington (William Waine and Co. Ltd.) July 11; Mr N. G. Bassett Smith (Dunlop Special Products Ltd.) July 14; Mr W. A. Ingian (Lea Bridge Rubber Works Ltd.) July 15; Mr Grahame A. Kemp (Chief Chemist, Howard Clayton-Wright Ltd.) July 19; Mr A. E. Penfold (Golf Ball Developments Ltd.) July 22; Mr L. J. Lambourn (Manager, Tyre Design Division, Dunlop Research Centre) July 30.

Birthday greetings are also due for August to Mr R. H. Norman (RABRM) for August 3; Mr S. G. Deaves (BTR Industries Ltd.) August 7; Mr F. B. Thompson (Durable Rubber Manufacturing Co. Ltd.) August 11; Mr W. T. L. Becker (Volcrepe, Ltd.), Mr G. E. Oakley (Dunlop Rubber Co. Ltd.) August 13; Mr M. Clayson (The Excel Polish Co. Ltd.) August 15; Mr G. E. Holmes-Siedle (IRI) August 17; Dr W. C. Davey (Chemical Research Department, Central Research Division, Dunlop Research Centre) August 24; Mr H. S. Bennett (Henry A. Cole and Co. Ltd.) August 27; Miss M. J. Mackie (RABRM Library) August 29.

***Duly authenticated dates for inclusion in this feature will be welcomed by the Editor.*

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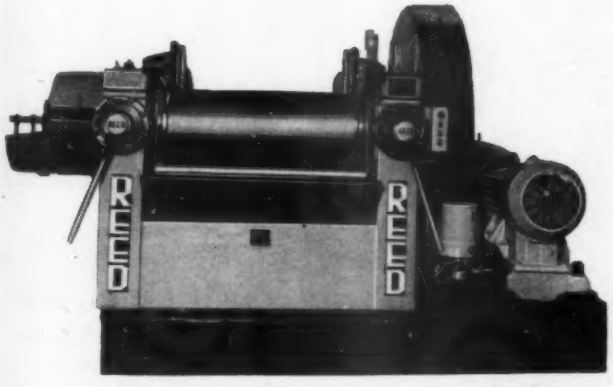

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Plastics Institute Dinner

RECORD ATTENDANCE ATTRACTED

THE dinner held at Quaglino's restaurant, London, on June 26 proved to be one of the most outstandingly successful social events organized by the Plastics Institute. The speeches reached a high level of excellence by any standard: four were made and all were notable. Close on 450 members and their guests attended and were received by Dr J. C. Swallow, president of the Plastics Institute, and Mrs Swallow.

Among those present were Lord Mancroft, guest of honour, and Lady Mancroft; Sir Miles Thomas and Lady Thomas; Mr J. V. Crossley, chairman of Council, and Mrs Crossley; Dr G. Tolley, chairman-elect of Council; Mr A. A. Part, Under Secretary, Further Education Branch, Ministry of Education; Mr N. B. Punfield, chairman of Council, British Plastics Federation, and Mrs Punfield; Mr H. F. Wilson, president-elect of the Institute, and Mrs Wilson. Mr M. W. H. Lancaster, Master, the Worshipful Company of Horners, and Mrs Lancaster; Mr K. E. Gerard, past-president, Plastics Institute of Australia; Mr J. D. B. Ker, past-chairman, Southern African Section, and Mrs Ker; Dr V. A. Kargin, director of the Kharov Institute of Physical Chemistry, and Jan Erik Jansen, Secretary of the Swedish Plastics Federation.

The occasion was also notable for the presentation, by Dr Swallow, of the Institute's first gold medal award which went to Dr N. J. L. Megson for his paper, 'Modern Ideas on Polymer Formation.' The Institute's silver medal was presented to J. M. Buist and A. Lowe for their paper 'Polyurethanes, the Properties and their Applications.' Afterwards, a Fellowship certificate was presented to Mr G. C. Ives.

In proposing the toast of the Plastics Institute, Lord Mancroft, in his usual excellent form, fulfilled Members' expectations with an amusing speech. Dr J. C. Swallow, in his response said that it was his last appearance as president, and it was therefore all the more pleasant to be able to welcome so many overseas visitors. They had with them guests from Russia, Australia, Sweden and South Africa. He particularly wel-

Among those present at the dinner (*above, left to right*): **1. R. B. Dickson (Formica), Bernard Harris (Bakelite). 2. Mrs Ker, J. D. B. Ker (past-president, South African Section, Plastics Institute), George Tolley (Allied Ironfounders). 3. N. J. L. Megson (Ministry of Supply) receives the Gold Medal from Dr J. C. Swallow. 4. G. C. Ives (Yarsley Testing Laboratories) receives his Fellowship certificate. 5. J. M. Buist and A. Lowe (I.C.I.) receive their Silver Medal. 6. Gilbert S. Wood (Horners' Company), M. W. H. Lancaster (Master, Horners' Company), Mrs Wood and Mrs Lancaster.** *Facing Page:* **1. Lord Mancroft (Guest of Honour), Dr J. C. Swallow (President of the Plastics Institute), Sir Miles Thomas (Monsanto). 2. D. J. Nash, Charles Oakhill, Mrs Nash, Mrs Oakhill. 3. R. F. Eagle (T.P. Polyplastics (Converters) Ltd.), E. Dickason (I.M.A. Ltd.), D. K. Parker (BX Plastics), L. R. Sadler (Betterwear Ltd.) and T. Brazier (BX Plastics). 4. E. A. O. Mange and J. Hargreaves, 5. N. J. L. Megson, Mrs Megson, Jack Buist and Mrs Buist. 6. Jan Erik Jansen (Swedish Plastics Federation), Mrs Gilbert S. Wood, Mrs Jansen, H. W. Graesser-Thomas. 7. Ian Coubrough, J. A. Coubrough (British Xylonite). 8. J. V. Crossley (I.C.I., Chairman of Council, Plastics Institute), Lord and Lady Mancroft. 9. R. Bassett (St. Helens Cable and Rubber Co.), Mrs Bassett, C. H. J. Avons (St. Helens Cable and Rubber Co., chairman, London Section IRI) and Mrs Avons. 10. P. A. Wilson (Bakelite), N. Townsend (Ferguson Radio Corporation) and C. R. Jennings (Formica)**

comed also Mr Norman Punfield, chairman of Council of the British Plastics Federation; Mr S. E. Goodall, president of the Institution of Electrical Engineers; Professor Burton from the Royal Institute of Chemistry; Mr M. W. H. Lancaster, Master of the Worshipful Company of Horners. He would also like to mention specially Sir Miles Thomas, who combined with his other, and possibly better-known activities, that of chairman of the Board of Governors of the Brunel College of Technology.

The plastics industry, said Dr Swallow, was unique. There was no industry in which plastics were not used to a greater or lesser extent. There had been, too, a tremendous revival in the European plastics industry. As with the Industry, so with the Institute. It seemed to him that they had perhaps reached a turning point. He would like to thank all members, he concluded, for the time they had given to the Institute affairs.

In a brief and amusing speech, Sir Miles Thomas, vice-president of the Institute, proposed the toast of the guests. He, too, he said, could talk on plastics and he might even discourse on oxygen and alcohol as a catalyst in social affairs. They were, he said, delighted to see so many members and guests present.

Replying for the guests, Mr A. A. Part, Under Secretary, Further Education Branch, Ministry of Labour, said that he had wondered at first why he had been invited. But then it had occurred to him that when arrangements for the dinner were being made, there was the possibility of an election intervening before the actual date. There was no one, said Mr Part, so 'ex' as an ex-minister.

Mr Part concluded a clever and most amusing speech by expressing the thanks of the guests for a pleasant evening. He would like to congratulate the Plastics Institute, he added, for all the work it was doing in the cause of technical education.

Plastics Institute AGM

H. F. WILSON THE NEW PRESIDENT

AT the annual general meeting of the Plastics Institute, held in London on July 22, H. F. Wilson, B.Sc., A.R.I.C., Companion I.E.E., F.P.I., managing director of the Telegraph Construction and Maintenance Co. Ltd., was elected president of the Institute (*RJIP*, May 16 1959). Other elections and re-elections were as follows: Chairman of Council, G. Tolley, M.Sc., Ph.D., F.R.I.C. (Allied Ironfounders Ltd.). Honorary treasurer, A. W. Sherwood, F.P.I. Honorary general secretary, J. Taylor, B.Sc., F.R.I.C., F.P.I.

H. F. WILSON

To the four vacancies for ordinary members of Council, the following were elected: M. G. Church, B.Sc., A.R.I.C., F.P.I., Ministry of Supply. J. Hargreaves, Imperial Chemical Industries Ltd. D. S. Mahon, B.Sc., Bakelite Ltd. P. Russell, B.Sc., A.R.I.C., B.I.P. Chemicals Ltd.

In the absence of the president, Dr J. C. Swallow—on business in Canada—Mr J. V. Crossley, chairman of Council, took the chair. The past year, he said, had been a good one for the Institute. The recently introduced changes in the regulations governing the entry of new associates were already bringing forward applicants for entry without examination. At the end of a brief speech, Mr Crossley said that the thanks of members were due to Mr A. W. Sherwood, honorary treasurer, and Mr J. Taylor, honorary general secretary, for all the work they had done, and likewise to their secretary Mr J. Ratcliffe and the staff of the Institute.

Dr V. E. Yarsley, as a past-president of the Institute, then invested Mr Wilson as president. Although he regretted the absence of Dr Swallow, said Dr Yarsley, he was particularly pleased to have had the opportunity as Mr Wilson had been a member of the Council when he himself had been president. Mr Wilson's work then had been of very great value to the Institute and the industry.

In a brief reply, Mr Wilson said he felt greatly honoured by his election. He hoped he would be able to make the same sort of contribution as had his predecessors.

IRI NEWS

At a meeting of the Council of the Institution of the Rubber Industry held on July 28 G. E. Watts was admitted to the Fellowship. Messrs N. Dixon, F. G. W. King and R. Barber were elected to Long Service Membership.

The Institution has been requested to arrange a series of lectures in Eire and the first of these, to be given jointly by Dr Mullins and Dr Wake will take place in Cork, on October 2 1959.

Thirty-one members have submitted their names for inclusion in the official list of IRI Delegates to the International Rubber Technology Conference, Washington, in November.

Merseyside Section

The Merseyside Section of the Institution announce the holding of a 'Short Papers Competition' open to anyone engaged in the rubber industry. Valuable prizes will be awarded for the best papers on any aspect, process, development or problem in the industry. Winning papers will be read at the Section's meeting on Monday December 7 1959.

Full details of the competition may be obtained from the Hon. secretary: Mr F. W. Ball, Dunlop Rubber Company Ltd., Speke, Liverpool, 24.

Foundation Lecture

In the caption to the photographs taken on the occasion of the IRI Foundation Lecture and published in our issue of June 13, Mr C. H. J. Avons, chairman of the London Section of the IRI, was described as being with the Firestone Tyre and Rubber Co. Ltd. Mr Avons is, of course, with the St. Helens Cable and Rubber Co. Ltd. of Slough, Buckinghamshire.

R. W. Greeff and Co. Ltd. Glasgow Office

A branch office at 147 Bath Street, Glasgow, C.2, telephone: Central 2564, has been opened by R. W. Greeff and Co. Ltd. The new office is under the management of Mr A. Mawer, who, trading as Robert A. Bird and Co., has been an agent for the company in Scotland for many years.

Mr Sharp Young, general sales manager, has been appointed to the board of George MacLellan and Co. Ltd., Glasgow Rubber and Asbestos Works, Maryhill, Glasgow.

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Review

ELEMENTS DE SCIENCE ET TECHNOLOGY DU CAOUTCHOUC. — (Published by L'Institut Français du Caoutchouc under the direction of Jean le Bras. Paris, SETCO, 3 Square Petrarque. Frs.2,000.)

This is the third edition of the work under review which is, in itself, a tribute to its qualities. For all who are able to read French—and the language used is at all times simple and clear—it gives an excellent summary of all the more important aspects of rubber science and technology. The scope may be judged from the chapter headings which are: General, including markets and statistics; Cultivation of rubber; Latex, its composition and properties; Physical properties of rubber; Chemical composition and structure of rubber; Chemical properties of rubber; Vulcanization; Compounding ingredients; Plant and machinery; Direct utilization of latex; Theories of rubber chemistry; Synthetic rubbers; Analysis and testing; Ebonite, reclaim, chemical derivatives; Uses of rubber.

Dr le Bras has succeeded in making the subject matter on the one hand short and clear and on the other, accurate in every respect—a combination which is difficult to achieve. The book is therefore ideal for the student, for those engaged in any section of the industry and who wish to increase their technical knowledge, for example, merchants, engineers and suppliers of machinery and materials, and in fact for the general reader. The work is of high standard throughout so that criticism must, in general, be confined to small matters of detail.

Dr le Bras has had the co-operation of eight of his assistants at the French Rubber Institute and this may account for some slight repetition and also for some unevenness in style and treatment. The chapter on the direct utilization of latex, for example, falls below the standard set elsewhere. This is essentially a practical subject but it is dealt with in a vague and general fashion. There is not a single mix or formula in the whole chapter. The names of a number of investigators appear throughout the book but there are no direct references to their work. It would have been better either to give the references or to have omitted the name of the investigator. The statement that 'a study by M. Jones gives a characteristic example' seems hardly worth while for, although a tiny fraction of the readers will know that this refers to Mr Maldwyn Jones, well known in the rubber industry, to the vast majority the name will mean nothing.

The book contains large numbers of excellent graphs and illustrations. The printing, binding and general standard of production are excellent and the price is most reasonable. The book can therefore be strongly recommended.

∴ Copies may be ordered through the Books Department, RUBBER JOURNAL AND INTERNATIONAL PLASTICS, Maclaren House, 131 Great Suffolk Street, London, S.E.1.

Shell Polypropylene

At a cost of about 3s. 9d. per lb., Shell polypropylene is now being made commercially available in the UK in a variety of shades and colours for moulding and extrusion applications. The Shell Chemical Co. also announces that as the result of further developments in the Ziegler process, they are extending their range of high-density polythene with 'Carlona' 900, which has a higher density, improved rigidity and a faster moulding cycle.

Tyre and Tube Prices Cut

Tyre price reductions of 7½%, effective August 8, have been announced by Dunlop, on all popular sizes of new car tyres; by Firestone, on all car tyres; and Goodyear, on all motor car tyres and tubes; by Avon India Rubber, on all new car covers and tubes; by Pirelli, on all tyres and tubes; and by Kelly Springfield, on its whole car tyre range.

Mr Thomas H. Miller has been appointed a director of the Rubana Rubber Estates in place of Mr Albert H. Throssell, who retired by rotation at the recent annual meeting and did not seek re-election.

Plastics Statistics

Sales and Stocks

SALES of plastics materials in the first quarter of this year were only slightly below the record level reached in the fourth quarter of 1958 and at 112,300 tons were some 9% higher than in the corresponding period of 1958. Stocks of plastics materials increased by almost 2,800 tons during the quarter indicating that production was at the highest level so far recorded.

Exports of all plastics materials in the quarter at 32,800 tons were a little below the record level of the last quarter of 1958, but almost 18% higher than a year earlier. Imports at 10,500 tons were less than 4% higher than a year earlier.

Net sales of plastics materials during the first quarter of 1959, with comparative figures for 1958, were as follows, in thousands of tons:

	Jan.-March 1959	Jan.-March 1958
Thermosetting materials:		
Alkyds	11.5	11.1
Aminoplastics ..	12.6	13.2
Phenolics and cresylics	17.3	16.6
Polyesters	1.5	1.1
Other*	1.8	1.5
Total thermosetting ..	44.7	43.5
Thermoplastic materials:		
Cellulosics	2.6	3.5
PVC	20.2	18.4
Polystyrene ..	8.5	8.3
Other†	36.3	29.1
Total thermoplastic ..	67.6	59.4
Total all plastics ..	112.3	102.8

* Including epoxide resins and casein plastics.

† Including acrylics, polyamides, PTFE, polythene, PVC, and polyvinyl acetate.

Mr J. A. Moore has been appointed finance director of Dunlop Rubber Co. (India) Ltd. in place of Mr A. W. Gillespie, who has retired.

The outgoing chairman of the Rubber Producers' Council of Malaya, Mr Leong Hoe Yeng, on a recent tour of the Dunlop Sports Company's factory at Waltham Abbey, is shown steps in the manufacture of a tennis racket. With him is Mr D. M. Allen (*left*), manager of the information and administration section, materials supply division, and Mr H. Hatfield-Smith (*right*), the factory's works manager

Rubber Statistics

NIGERIA—NORTH BORNEO—VIETNAM—JAPAN—CANADA

DETAILS have now been made available by the Secretariat of the International Rubber Study Group of the Nigerian rubber position up to the end of 1958.

Nigeria

Nigeria's rubber exports during 1958 totalled 41,062 tons compared with the 1957 total of 39,542 tons. The principal destination for these exports was the UK, taking 19,724 tons and followed by the US with 9,162 tons. Western Germany took 6,674 tons, Czechoslovakia 2,280 tons and Holland 1,137 tons. Other countries taking this rubber included Belgium (476 tons), Denmark (767 tons), France (110 tons), Italy (75 tons), French Territories (182 tons) and South Africa (85 tons).

British North Borneo

The Study Group has now issued figures for North Borneo's exports during the first quarter of the year. These totalled 5,673 tons, compared with exports of 4,971 tons during the first quarter of 1958. Of this total, Japan took 2,094 tons, while 1,664 tons went to Singapore. The UK received 804 tons of this rubber and the US 150 tons.

Vietnam

The Study Group has also released similar information regarding Vietnam's exports during the first quarter of the year. These amounted to 16,752 tons and included 485 tons of latex. During the first quarter of last year, exports from this country totalled 17,760 tons. This year France has been the recipient of the largest tonnage of Vietnam rubber, with 5,512 tons, and has been followed by the US with 4,305 tons and Western Germany with 3,009 tons. The UK received 1,184 tons and Belgium 1,172 tons.

Tokyo

Production of rubber goods in Japan during June amounted to 13,283 tons—practically unchanged from production in May—according to the Japan Rubber Association.

Output of main rubber articles in June (preliminary) compared with May (revised) was as follows:

	June	May
Automobile tyres/tubes	4,690	4,742
Bicycle tyres/tubes	862	808
Rubber shoes	1,319	1,295
Chemical shoes	729	688
Rubber-soled canvas shoes	720	758
Belts	725	703
poses	435	414
Rubber coatings	664	689
Industrial uses	1,691	1,700

Canada

The Secretariat has also included in its latest Bulletin final details of the Canadian rubber position during 1958.

These show that during the year Canada imported 33,829 tons of crude natural and 3,713 tons of latex, or 37,542 tons of natural rubber in all, compared with imports of 43,110 tons during 1957. Malaya was the principal supplier of this rubber, providing 26,487 tons, while 4,437 tons came from Ceylon. Stocks of natural at the end of the year stood at 4,054 tons of crude and 413 tons of latex, having fallen some 200 tons in the course of the year.

Production of synthetic rubber in Canada during 1958 amounted to 135,036 tons, an increase of some 3,000 tons compared with the previous year, and included 86,796 tons of S-type and 26,424 tons of butyl.

During 1958 also, 5,939 tons of rubber were reclaimed and 9,617 tons of reclaim were imported. At the same time, consumption of reclaim amounted to 15,121 tons, and stocks at the end of the year amounted to 1,400 tons, as against stocks of 1,620 tons held at the beginning of the year.

Courtaulds (Canada)

Courtaulds (Canada) Ltd., Montreal, announced the purchase of production and marketing equipment for foamed polystyrene from Guardian Chemical and Equipment (Montreal) Co. Ltd. Included in the deal is the registered trade mark 'Styrolite' and the exclusive licence, previously held by Guardian, for the use and sale in Canada of prefoaming and moulding equipment. To exploit these acquisitions a new company, Courtaulds Plastics (Canada) Ltd., has been formed and J. G. Davoud named as president.

Rubber Crop Returns

RUBBER ESTATE AGENCY

	May 1959 lb.		Fin. year to date lb.		No. of mths. of fin. year to date
Bandar Sumatra	82,000	(64,000)	989,000	(862,000)	10
Batu Kawan	67,100	(54,300)	547,600	(519,360)	9
Buntar	105,000	(83,000)	1,087,300	(965,800)	11
Eastern Sumatra	279,000	(252,000)	808,000	(738,000)	3
Amalgamated Rubber	30,800	(33,000)	167,200	(184,800)	5
Java Rubber Plant.	90,200	(90,860)	449,900	(466,840)	5
Jeram	*314,000	(162,000)	568,500	(320,000)	2
Kepitigalla	45,000	(59,000)	76,000	(95,000)	2
Kuala Lumpur	†592,530	(312,500)	4,880,930	(3,766,530)	11
Langkat Sumatra	60,000	(62,000)	253,000	(346,000)	5
Soember Ajoe	20,020	(30,800)	223,740	(237,600)	8
Sungei Bahru	106,000	(79,000)	197,000	(148,000)	2
Sungei Kahang	167,930	(133,000)	441,310	(406,900)	3
Tambira	86,590	(77,900)	1,151,130	(1,202,130)	11
Tamiang (Malaya)	77,400	(44,000)	583,000	(449,000)	8
Tanjong Malim	395,000	(238,200)	3,888,900	(3,187,600)	11

* Including crop from Tuan Mee Estate
† Including crop from Sungei Kawang Estate

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	April 1959 lb.		Fin. year to date lb.		No. of mths. of fin. year to date
Anglo-Johore	56,200	(50,500)	547,300	(455,160)	9
Bekoh CRE	164,500	(153,000)	164,500	(153,000)	1
KPRP Ltd.	51,000	(28,500)	51,000	(28,500)	1
Rim (Malacca) RE	176,000	(148,500)	2,165,500	(1,761,700)	10
Sittang Valley RE	110,530	(114,540)	1,123,340	(1,254,520)	10
Kurunegala Rubber	18,095	(22,080)	88,360	(112,875)	4

THOMAS BARLOW AND BRO.

	April 1959 lb.	Fin. year to date lb.	
Bradwall (FMS)	108,500	426,800	(516,000)
Chersonese (FMS)	53,000	206,000	(192,000)
Highlands and Lowlands Para (including Scottish Malayan)	1,645,600	6,725,200	(6,500,550)
Klabang	77,000	320,000	(291,500)
Krian	7,300	23,600	(44,240)
Muar River	78,000	413,000	(519,000)
Sungei Krian	137,500	562,000	(600,500)
Manchester North Borneo	61,364	61,364*	(52,166)

* One month. All the rest four

	April 1959 lb.		Fin. year to date lb.		No. of mths. of fin. year to date
Beau Sejour	33,402	(34,260)	543,883	(518,288)	10

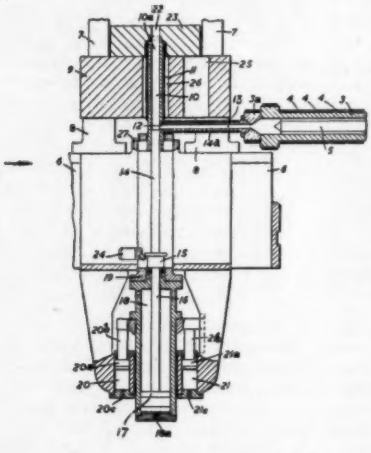
PATENT SPECIFICATIONS

The following information is prepared from published Patent Specifications. The full Specifications can be obtained from the Patent Office, 25 Southampton Buildings, London, W.C.2, at 3s. 6d. per copy (including postage).

Injection Moulding Machines

No. 810,200. R. H. Windsor Ltd. Inventor: K. H. Baigent. Application, May 25 1955. Filed, August 24 1956. Published, March 11 1959.

A preplasticizing injection moulding machine is designed for moulding articles of thermoplastic materials under pressures of 30,000 psi and upwards, which is considerably higher than the pressures normally possible with standard preplasticizing injection moulding machines. With a machine according to the invention, the thermoplastic material, instead of being injected direct from the preplasticizing injection chamber into the mould (as in the machine described in Specification No. 760,480),



is injected from the preplasticizing chamber into a transfer injection chamber from which it is then injected into the mould. An hydraulically-operated plunger is mounted in the transfer chamber and is operated by hydraulic fluid supplied by a pump which drives the screw conveyor in the preplasticizing chamber. In order to produce the required high speed and pressure, at least one additional pump is provided and means are also provided for bringing both pumps into operation during the injection stroke of the plunger in the transfer chamber.

In the drawing, 3 is the preplasticizing chamber, 4 the heating elements, and 5 the screw conveyor of the preplasticizing unit, the construction and function of which is described in Specification No. 760,480. The transfer unit comprises a transfer chamber 10 provided with an orifice 10a adapted to register in sealing engagement with the inlet orifice 22 of a mould 23. Thermoplastic material is injected into the chamber 10 from the preplasticizing chamber 3 through an orifice 12 which is connected with the injection nozzle 3a of the chamber 3 of an intermediate extension conduit 13. This conduit is provided at its ends with spherical portions which register with corresponding spherical seatings so that any relative vertical displacement of the transfer unit and the preplasticizing unit will not result in damage to the conduit 13.

Slidably mounted within the transfer chamber 10 is a transfer injection plunger 14, coupled by means of a coupling 15 with the piston rod 16 of a piston 17, operating in an hydraulic main cylinder 18. Two counterbalance cylinders 20 and 21 are arranged one on each side of the main cylinder 18, and the pistons 20a and 21a are connected with the piston rods 20b and 21b, which are rigidly connected with the main cylinder 18. The main cylinder and the two counterbalance cylinders are connected through ports 18a, 20c and 21c respectively, and pipe lines (not shown) with the hydraulic system of the preplasticizing unit. The main cylinder 18 operates the transfer plunger 14, while the counterbalance cylinders function to counterbalance the reaction pressure of the plunger during the injection stroke and hold the transfer chamber in tight sealing engagement against the mould orifice 22.

An operating cycle of the machine will now be described. At the end of an operating cycle, the transfer plunger 14 is at the top of its injection stroke, the mould is open and both pumps are idling. The mould is then closed by the prefil system and during the closing of the mould, switch means are operated to move the transfer plunger 14 to its lower pre-injection position, uncovering orifice 12 and simultaneously operating switch 24. Operation of this switch starts the pump which operates the preplasticizing unit to inject the thermoplastic material from the chamber 3 into the transfer chamber 10. The additional pump is then started and both pumps operate on cylinder 18 to cause the transfer plunger to inject the thermoplastic material from the chamber 10 into the mould, hydraulic pressure also being applied to cylinders 20 and 21 to counterbalance the reaction pressure of the plunger 14. Immediately injection has taken place, only one pump is used to hold high pressure on the plunger 14 for the predetermined cooling period, while the other is employed to actuate the hydraulic motor of the preplasticizing unit, automatically switching itself off when the requisite amount has been preplasticized. At the end of the cooling period the moulds open and the moulded article is removed.

Shorter Abstracts

Bonding Materials. 808,271. Dunlop Rubber Co. Ltd. Filed, October 18 1955.—An adhesive composition comprising a mixture of a butadiene-methyl isopropenyl ketone copolymer and a phenolic resin, as described in Specification 804,201 (*RJIP*, February 7 1959, page 220), is claimed as a bonding agent particularly for brake linings.

Vulcanization Retarder. 808,431. Imperial Chemical Industries Ltd. Filed, January 30 1937.—Sulphamic acid and certain of its derivatives are claimed as vulcanization retarders, particularly for rubber stocks containing furnace blacks.

Brattice Cloth. 809,462. R. S. Colbourne. Filed, January 23 1957.—Brattice cloth is made by impregnating a specified type of fabric with a non-inflammable PVC composition and then laminating the impregnated fabric with a preformed sheet of a non-inflammable PVC composition.

Anti-cracking Agents. 809,743. Dunlop Rubber Co. Ltd. Filed, November 25 1955.—A small proportion of an alkaline earth metal salt of an organic aliphatic carboxylic acid is incorporated in natural rubber compounds to reduce both exposure cracking and flex cracking. Examples of the anti-cracking agents are strontium oleate, strontium laurate, barium lactate and calcium laurate.

Export Opportunities

Conveyor Belting for Canada

Paragon Supplies Ltd., 895 East Hastings Street, Vancouver, B.C., wish to obtain an agency for a line of UK manufactured rubber conveyor belting. Interested manufacturers should write direct to Mr A. W. White, managing director of the Canadian company, and notify the UK Trade Commissioner, The Mercantile Bank Building, 540 Burrard Street, Vancouver 1, B.C., that they have done so. B.o.T. reference ESB 11548/59.

PVC Sheet for Ceylon

Mr Earle H. Nicholas, 16 Gaffoor Building, Main Street, Colombo, 1, is interested in representing a UK manufacturer of PVC sheet and other allied materials. Interested manufacturers should write direct to Mr Nicholas and notify the UK Trade Commissioner, P.O. Box 745, 2nd Floor, Hong Kong Bank Building, Prince Street, Colombo, that they have done so. B.o.T. reference ESB 11625/59.

The address of the Export Services Branch of the Board of Trade is Lacon House, Theobalds Road, London, W.C.1. Telephone number: Chancery 4411, extensions 776 or 866.

Rubber Markets

LONDON

Interest has again been centred on nearby positions in the London rubber market during the past week and prices here are slightly firmer. By contrast, the distant positions record small losses. Bear covering has been mainly responsible for the firmness of nearby positions, the market having been oversold at the time of the US stockpile scare at the beginning of last month. The Spot is a farthing per lb. higher at 31d. per lb.

Latest prices are as follows:

No. 1 RSS Spot: 30⅞d.-31⅛d.

Settlement House:

September 30⅜d.-30⅞d.

October/December 30⅛d.-30⅜d.

January/March 29⅛d.-29⅜d.

April/June 28⅞d.-29.

July/September 28⅜d.-28⅛d.

October/December 28d.-28⅛d.

No. 1 RSS cif basis ports:

August 30⅛d.-30⅞d.

September 30⅛d.-30⅜d.

Godown:

August 104½ Straits cents nominal.

Latex

Centrifuged latex per gallon in drums, September shipment, 18s. 4d. seller, cif European ports. Spot, seller, 18s. 9d. Bulk, seller, 18s. 2d. Creamed, seller, 17s. 11d. Normal, seller, 14s.

CEYLON

No. 1 RSS

The price of No. 1 RSS spot at Colombo on August 10 was 136¼ (139¼) Ceylon cents per lb.

DJAKARTA

The market opened firm at previous levels on August 10, but prices eased during the course of the day on lack of buying support. The close was steady but quiet.

	Rupiahs per kilo Aug. 10	Prev.
Spot No. 1 Priok ..	32.50b	32.75b
Spot No. 2 Priok ..	31.75b	32.00b
Spot No. 3 Priok ..	30.75b	31.00b
No. 1 fine pale crepe ..	30.00b	30.00b

Tendency: Quiet.

SINGAPORE

Prices were marked down at the outset on August 10 and the market eased further on heavy profit-taking and reserve of buyers. Lower sheet interest was on the small side. Factories were quiet. In the afternoon, news of a decline in imports into Malaya during July caused only a slight rally which in its turn met further heavy selling. The market slipped, operators were nervous and disinclined to support. Prices finished at the lowest levels of the day with the tone easier.

	Straits cents per lb., fob Malayan ports to open ports Close	Previous Close
No. 1 RSS, Aug.	106¼–106½	108⅛–108⅜
Sept.	104 –104⅛	106⅛–106⅜
No. 2 RSS, Aug.	104⅛–104⅜	106⅛–107⅛
No. 3 RSS, Aug.	103⅞–104⅛	106⅛–106⅜
No. 4 RSS, Aug.	102⅛–103⅛	104⅛–105⅛
No. 5 RSS, Aug.	100⅛–101⅛	102⅛–103⅛
No. 1 RSS, Spot	106⅛–106⅛	108⅛–108⅜
No. 3 blanket, thick remilled, Aug.	101 –103	103 –105
No. 1 fine pale crepe, Aug. ..	111⅛–113⅛	113⅛–115⅛
2x thin brown crepe, Aug. ..	100⅛–101⅛	102⅛–103⅛

Tendency: Easier

The Industries Syndicate quote latex, native produce, 60% centrifugal, packed in rec. drums fob at 207.2d. per gallon.

BANGKOK

No. 1 RSS

The price for No. 1 RSS, at Bangkok on August 10 was 35.50 (35.50). US cents per lb.

NEW YORK

The following prices ruled in New York on August 10:

Dealers' Prices

	US cents per lb. Aug. 4	Previous
No. 1 RSS, Aug.	36⅛b–36⅜a	37 b–37⅛a
Sept.	36⅛b–36⅜a	37 b–37⅛a
No. 2 RSS, Aug.	36⅜b–36⅝a	36⅞b–37⅛a
Sept.	36⅜b–36⅝a	36⅞b–37⅛a
No. 3 RSS, Aug.	36 b–36⅛a	36⅛b–37 a
Sept.	36 b–36⅛a	36⅛b–37 a
No. 1 RSS, Spot	36⅛b–36⅜a	37 b–37⅛a
No. 3 amber blanket crepe, Oct.	36n	36 b–36⅛a
No. 1 latex, thin crepe, Aug. ..	36⅞n	37⅛n
No. 1 latex, thick crepe, Aug. ..	38⅛n	37⅞n

Futures—Rex Contract

	US cents/lb. Close	Prev. Close
Sept. ..	37.50b–37.75a	38.00b–38.05a
Nov. ..	35.80t	36.30t
Jan. ..	35.05b–35.25a	35.65t
March ..	34.80b–34.97a	35.30b–35.50a
May ..	34.60b–34.85a	35.10b–35.25a
July ..	34.50b–34.75a	35.00b–35.15a
Sept. ..	34.40b–34.65a	34.90b–35.05a

Sales: 30. Tendency: Dull.

Rubber futures were easy on August 10, off about half a cent per lb. on scattered liquidation in very thin dealings. Traders said that the decline at foreign centres and the lack of factory offtake here induced the selling. Shipment offerings were too high prices for this market and business in physicals was slow.

AMSTERDAM

The Amsterdam rubber market ruled as follows on August 10:

No. 1 RMA	Guilders per kilo August 10	Previous
August	2.97½	3.00
September ..	2.97½	3.00
October	2.97½	3.00
November ..	2.97½	3.00
December ..	2.97½	3.00
Oct./Dec. ..	2.97½	3.00

Sales: 15. Tendency: Steady.

UK Plastics in Germany

A number of British goods has been selected by the Council of Industrial Design for display on the Government Stand in the UK Pavilion at the German Industrial Exhibition in Berlin, September 12-17. The emphasis on selection has been on well-designed consumer goods which are likely to be of particular interest to German buyers and public.

The products chosen are: Contemporary plastic pepper mills, Park Green and Co. Ltd., London, W.4.; a large round polished perspex tray, X-lon Products Ltd., London, S.W.1.; PVC floor coverings—'Cord' and 'Nutria Beige,' the Adamite Co. Ltd., London, S.W.1.; floor tiles—SF13 'Steel' and SF10 'Black,' Semtex Ltd., London, W.1:; rubber floor tiles—TU Class 17, 991 'Confetti,' Morris Rubber Industries Ltd., Byfleet, Surrey; PVC floor covering — 'Rosella Patio,' Dermide Ltd., Leeds.

Harrisons and Crosfield Ltd.

Mr A. L. Mathewson, O.B.E. retires from the board of Harrisons and Crosfield Ltd., on June 30 after 52 years' service with the company, 34 of them as a director.

Nigerian Rubber Price

The price of rubber for July 1959 for the purpose of assessing values of export duties was 29.75d. per lb. against 27.63d. for June.

Sir Richard Rankine has resigned from the Board of the Rubber Plantations Investment Trust for health reasons.

Factory shipments of footwear by Canada's rubber industry declined in 1958 to 13,556,936 pairs valued at $29,691,303 from 15,169,748 pairs valued at $32,856,620 in 1957, according to advance figures released by Dominion Bureau of Statistics.

Industry INTELLIGENCE

Technical Data

Epoxide-Glass Laminates

Bakelite laminate DH 19073 Natural is an epoxide-glass laminate, copper clad versions being available with 1oz. copper foil on one or both sides (DH 19074 and 19074/1 Natural, respectively) and with 2oz. copper foil on one or both sides (DH 19074/2 and 19074/3 Natural, respectively). Data for the properties of these epoxide-glass laminates are given in Advance Information Sheet E.34 issued by Bakelite Ltd., 12-18 Grosvenor Gardens, London, S.W.1.

The laminates have high mechanical strength, low water absorption and good electrical properties. For example, when tested according to BS 2782, tensile strength is 35,000 psi, cross-breaking strength is 55,000 psi and compression strength (flatwise) is 55,000 psi. Water absorption is 3mg. for $\frac{1}{16}$in. thickness and 4mg. for $\frac{1}{8}$in. thickness. Insulation resistance after 24 hours' immersion in water is 10^4 megohms, power factor and permittivity at 1 megacycle are 0.025 and 5.0 respectively while electric strength is 300 V/mil. for $\frac{1}{16}$in. thickness normal to the laminae and 40 kV parallel to the laminae. DH 19073 Natural and 19074 Natural maintain their properties at temperatures up to and slightly above 100°C. while resistance to chemicals is in general very good, although ketones should be avoided. DH 19074, 19074/1, etc., are excellent for use in printed circuit applications where good bond strength and solder resistance are required. The light colour and translucency of the base material are also advantageous since circuits and components are visible through it.

Silicone Intermediates

A new 12-page data sheet describing four Union Carbide silicone intermediates is available from the Silicones Department, Union Carbide International Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N.Y., USA.

Union Carbide silicone intermediates, XR-820, XR-822, and A-183, are used to modify organic resins or compounds in order to improve their heat and weather resistance. They can be reacted with alkyds, epoxies, isocyanates, phenolics, some sugar alcohols and a variety of polyols in the standard equipment used for organic resin synthesis.

Three are sold as 100% silicone liquids. Because XR-830 is extremely viscous, it is marketed as a 60% solution in xylene to facilitate handling. They are shipped in 20oz. (0.6 litre), 2-quarts (1.9 litres), 1-gallon bottles (3.8 litres), and 5- and 55-gallon (18.9 and 208 litres) drums. A-183 is a monomer, and the XR-800's are low molecular weight polymers.

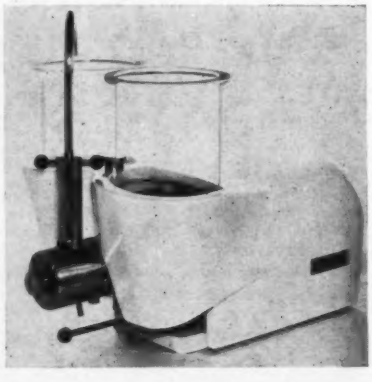
Density of Polysar Latices

A graph showing the density of Polysar Latex II, Polysar Latex IV and Polysar Latex 721 is given in Polysar Technical Report No. 8:3B, by T. E. Dunfield, distributed in the UK by Polymer (UK) Ltd., Walbrook House, Walbrook, London, E.C.4. The graph covers the temperature range 40° to 110°F. and the density can be read from the curves as lb./gallon, lb./US gallon and kg./litre. The density of Polysar Latex 721 is shown at a total solids content of 62% and at water dilutions to give total solids of 50%, 40% and 30%. The data for Polysar Latex II and Polysar Latex IV are for the normal total solids content of 27% and 43% respectively.

Machines, Materials and Equipment

New Ultrasonic Homogenizer

For many years there has been a need for a small versatile homogenizer at a reasonable price. There are many instances where the task involved does not justify an expenditure of over £150. Much of the equipment which has up to now been available has proved to be very limited in its range of application. The gap, its manufac-



turers claim, is filled by the new 'Minisonic.' This unit is three machines in one: A laboratory homogenizer with which small quantities of emulsions and dispersions can be quickly made. Up to 3 litres can be treated at one filling without external premixing; a small batch homogenizer for emulsions as required in the cosmetic industry or in hospital dispensaries; a pilot plant homogenizer with which an emulsification process can be worked out on a small scale. The principle upon which the 'Minisonic Model 3' works is that of the liquid whistle covered by British Patent No. 695,491 (and many foreign patents). Four distinct methods of use can be applied. Gradual emulsification, which is particularly useful when the proportion of disperse phase approaches the theoretical limit or when there is danger of reversal in the emulsion system. Instantaneous emulsification, which will result in a continuous production process when using the 'Rapisonic.' One pass homogenization for sonification of pre-mixes. Multiple transfer for emulsions and organic dispersions which yield better results when they are sonified more than once. During development work of the 'Minisonic Model 3' no limitations with regard to hot liquids have been met and a novel feature enables a very wide range of viscosities to be processed with equal efficiency. It is constructed so that all parts in contact with the liquid to be sonified are made in 18/8 stainless steel and corrosion resistant materials. All surfaces are polished, which greatly assists in cleaning; if necessary, the whole unit can be quickly dismantled. Built-in glass vessels and a three-way finger-tip control valve make for ease of operation and the 'Minisonic' is supplied ready for plugging into a 15 amp 3-pin socket.

Publications Received

'Milkiness' in Translucent Rubber

Reprinted from the 'Proceedings of the Institution of the Rubber Industry' Vol. 6, No. 1, a short paper on 'Milkiness in Translucent Rubber' by H. J. Sherwood, A.I.R.I., The Washington Chemical Co. Ltd., Washington, Co. Durham, has been issued. In this paper a study has been made of the occurrence of 'milkiness' in translucent rubber stocks which have been subjected to various degrees of strain. Two types of filler were used. A 'translucent' grade of light magnesium carbonate and a hydrated silica: both fillers being of British manufacture. A commercial translucent sole was also tested.

Teflon and Enflon

Catalogues and data sheets on Teflon and Enflon have been issued by the Enflo Corporation, Fellowship Road and Route, 3 Maple Shade, New Jersey, US. Produced in its raw state by Du Pont as tetrafluorethylene resin powder and then processed and fabricated by Enflo, Teflon, which is manufactured as tapes, bars, sheets and moulded cylinders, has good inherent electrical, mechanical and chemical properties. Enflon, rigidized Teflon, is basically the same material, but certain additives result in a higher tensile strength. Enrad 11, a moulded irradiated polyolefin in sheet form, is also produced by the company.

TRADE MARKS

Objections to the registration of any of the undermentioned applications may be lodged with the Comptroller-General of Patents, Designs and Trade Marks at the Patent Office, 25 Southampton Buildings, Chancery Lane, London, W.C.2, within one month of the date mentioned. The objections must be stated on Trade Marks Form No. 7, cost £2, obtainable through any money order office. The extracts—from 'The Trade Marks Journal'—given below are reproduced by permission of the Controller of H.M. Stationery Office.

SUNFRESHPAK (785,610) For packaging materials, bags; and containers made of flexible plastics for beverages; all included in Class 16. By O. R. Groves Ltd., 20 Jermyn Street, London, S.W.1. To be associated with No. 756,901 (4109, 372) and another. (Class 16; May 6 1959).

NYLATRON (776,381) For nylon plastics in the form of rods, plates, strips and of tubes and included in Class 17. By the Polymer Corporation, 2120 Fairmont Avenue, Reading, State of Pennsylvania, USA. Address for service is c/o Matthews, Haddan and Co., 31/32 Bedford Street, Strand, London, W.C.2. (Class 17; May 6 1959).

KRYFLEX (782,376) For synthetic rubber. By the Polymer Corporation Ltd., 1055-1265 Vidal Street South, Sarnia, Province of Ontario, Canada. Address for service is c/o Stevens, Langner, Parry and Rollison, 5 to 9 Quality Court, Chancery Lane, London, W.C.2. To be associated with No. 692,376 (3789, 38) and others. (Class 17; May 6 1959).

REAMLIGHT (784,439) For cushions (upholstery), mattresses, pillows (not for surgical or curative purposes) and upholstered parts of furniture. By the Dunlop Rubber Co. Ltd., Fort Dunlop, Erdington, Birmingham, 24. (Class 20; May 6 1959).

ASTRALON (781,314) For crimped continuous-filament textile yarns made of thermoplastic materials. By Ernest Scragg and Sons Ltd., Sunderland Street Works, Macclesfield, Cheshire. To be associated with No. 781,313 (4217, 480). By consent.) (Class 23; May 6 1959).

NEW COMPANIES

Fylde Plastics Ltd. (625,415).—April 8. Capital: £300 in £1 shares. To carry on the business of manufacturers, importers, exporters, repairers and designers of any products connected with plastics, etc. The directors are: Derek Whitehouse, 33 Crompton Avenue, Blackpool; John Wrigley, 34 Bangor Avenue, Bispham, Blackpool; Brian Wrigley, 5 Ashdown Close, Carleton, Poulton-le-Fylde. Regd. office: 41a Marsden Street, Kirkham, Lancs.

Duratect Ltd. (625,438).—April 9. Capital: £2,000 in £1 shares. To carry on the business of manufacturers of and dealers in rubber, synthetic rubber, plastic and allied goods, etc. The directors are: Stanley C. Haselgrove, 60 King's Road, Sutton Coldfield, Warwicks.; Horace W. Haselgrove, 75 Moor Park Road, Turners Green, Northfield, Birmingham; Wilfred J. Burke, Home Lea, The Fordrough, Lichfield Road, Four Oaks. Regd. office: 58 Villa Road, Handsworth, Birmingham.

Extruders and Moulders Ltd. (625,507).—April 9. Capital: £100 in £1 shares. To carry on the business of extruders, moulders and manufacturers of and dealers in plastic substances and materials, etc. The directors are: Mark H. Leighton, 78 Lynton Avenue, N.W.9; Mark Gordon, 4 Goodyers Gardens, N.W.4. Regd. office: 69 Wigmore Street, London, W.1.

Aurea Agency Ltd. (625,707).—April 13. Capital: £1,000 in £1 shares. To carry on the business of merchants, brokers and agents of all kinds and to act as secretary for companies which principally carry on the business of producing, buying and selling of tea, rubber, coconuts, copra, coconut oil, coffee, tin, graphite, etc. The directors are: Gerard W. S. Bagshawe, 24 Coleman Street, London, E.C.2; Thomas A. Tolhurst, 10 Old Square, Lincoln's Inn, London, W.C.2. Regd. office: 24 Coleman Street, London, E.C.2.

Sixteen ft. x 21ft. British Waterways barge reinforced PVC hatch covers weighing only 35lb. as against approximately 2cwt. for a normal tarpaulin, have been developed by Pakamac Ltd., Oldham. British Waterways' badges in blue, white and yellow (inset) are permanently sealed on the green, blue and yellow covers

PATENT LIST

Printed copies of the Specifications in the following list can be obtained from the Patent Office, 25 Southampton Buildings, Chancery Lane, London, W.C.2, price 3s. 6d., including postage, but about six weeks after the date of this publication will usually elapse before they come available. Orders with remittance may be sent in advance to the Patent Office, and will be fulfilled immediately the Specifications are published.

COMPLETE SPECIFICATIONS ACCEPTED

Open to public inspection on June 10 1959

Monsanto Chemical Co. Production of laminated structures. 814,739.

Hodogaya Chemical Co. Ltd. Fluorescent resin compositions for use as marking agents. 814,628.

Monsanto Chemical Co. Production of silica hydro-organosols and aerosols. 814,768.

Imperial Chemical Industries Ltd. Ethylene polymerization. 814,665.

P. Reggiani. Resilient rubberized fabric in strip form. 814,538.

Imperial Chemical Industries Ltd. Polymerization of ethylenically unsaturated compounds. 814,668.

Ciba (ARL) Ltd. Epoxy resin compositions. 814,818.

International Polaroid Corporation. Plastic sheets incorporating dye images. 814,819.

Courtaulds Ltd. Polyacrylonitrile solutions. 814,673.

Imperial Chemical Industries Ltd. Polymer compositions. 814,548.

Celanese Corporation of America. Purification of solutions of carboxylic acid esters of cellulose. 814,824.

Celanese Corporation of America. Production of organic acid esters of cellulose. 814,550.

B. F. Goodrich Co. Multicomponent interpolymers of vinylidene cyanide and preparation thereof. 814,624.

Celanese Corporation of America. Production of organic acid esters of cellulose. 814,831.

Firestone Tire and Rubber Co. Essentially cis rubbery polyisoprene and method of producing same. 814,676.

B. F. Goodrich Co. Suspension polymerization system for alkenyl aromatic polymers. 814,678.

Union Carbide Corporation. Thermoplastic resin compositions. 814,635.

De Bataafsche Petroleum Maatschappij NV. Process for curing epoxy resins. 814,694.

De Bataafsche Petroleum Maatschappij NV. Process for the preparation of epoxy resins. 814,695.

Esso Research and Engineering Co. Halogenated butyl rubber compositions. 814,699.

Midland Silicones Ltd. Organosilicon compound. 814,660.

Des Cableries et Trefileries de Cossonay SA. Methods of salvaging thermoplastic insulating material from insulated-wire scrap. 814,865.

United States Rubber Co. Unsaturated diesters of isopropylidenebis (phenyleneoxy) diethanols. 814,705.

Rubber Journal and International Plastics CLASSIFIED ADVERTISEMENTS

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Group Personnel Officer, BTR INDUSTRIES, LTD., Herga House, Vincent Square, S.W.1. (Ref. SRPT)

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AN expanding company situated in pleasant surroundings requires a plant development design draughtsman for interesting work on the design of special purpose machines, handling facilities and fixtures. Applicants, aged 25-45 years, should have served a recognised apprenticeship in general engineering and preferably have experience in the design and/or maintenance of plant and machinery used in the rubber industry. Good salary according to experience and ability, and assistance can be arranged with house purchase if this is necessary.—Write, stating briefly, details of experience and present salary to the Works Engineer, I.T.S. Rubber Limited, Petersfield, Hampshire. (130)

ANCHOR CHEMICAL CO. LTD., Clayton, Manchester 11, have vacancy for a rubber technologist in their rubber service laboratories. Minimum qualification A.I.R.I. with experience of modern rubber compounding and factory processes. Knowledge of plastics an advantage. The appointment, which is of a senior character, involves dealing with customers' problems at home and abroad. Profit sharing and contributory pension schemes.—Apply with full particulars to Managing Director. (124)

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APPOINTMENTS VACANT (continued)

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Salary £2,000 per annum upwards, according to experience

Applications, marked "Personal," to THE MANAGING DIRECTOR, Newman's Footwear, Ltd., Griffin Works, Blackburn, Lancs.

140

A VACANCY exists for a junior laboratory assistant, of L.I.R.I. standard, in a well-known company in the Manchester area. B.A.C. Wage Scales apply to this appointment.—Box 127. (127)

ASSISTANT to foreman in rubber moulding department required by manufacturers of precision rubber products, situated in south-west Middlesex area. Company house available, if required. Details of experience to:—Box 136. (136)

APPLICATIONS are invited from young men with sound technical training who wish to pursue a career in the product development field. Possession of qualifications in rubber and/or plastics technology will be an advantage and laboratory experience is essential.—Full details of age, experience, education and qualifications should be submitted, in confidence, to the Personnel Officer, Redferns Rubber Works Ltd., Hyde, Cheshire. (139)

MIDLAND SILICONES LTD. require a Chemist for work on polymers in an expanding Development Group in the laboratories at Barry, Glam. New buildings are under construction and a team has been formed to carry out applied research into the behaviour of silicone elastomers and to apply the results of such work to new products. Applications are invited from chemistry graduates, aged 25-30, preferably possessing a good honours degree and with experience of polymer or elastomer chemistry. The company operates a non-contributory pension scheme and a house purchase scheme is also in operation.—Please apply stating briefly age, qualifications and experience to the Staff Officer (Ref. 522), Albright & Wilson (Mfg.), Ltd. (with whom Midland Silicones is associated), P.O. Box 3, Oldbury, Birmingham. (113)

RUBBER IMPROVEMENT LTD., require a works manager who must be fully qualified and experienced in the rubber and plastics industries, to work directly under the general manager at their Wellingborough factory. This is a top-level appointment for a man of high calibre possessing appropriate qualifications, including experience of modern production methods and handling of labour. Non-contributory pension and life insurance schemes operate.—Write in complete confidence, giving fullest commercial and personal particulars and salary required to the Deputy Managing Director, Rilex House, Chandos Street, London, W.1. (105)

RUBBER technologist as assistant manager proofing department, Greengate and Irwell Rubber Co. Ltd., Greengate Works, Salford 3. Sound practical knowledge all processes, particularly isocyanate bonding to terylene, nylon, etc, fabrics and use of all synthetic polymers. Salary commensurate with experience. Good prospects.—Apply in confidence to the Managing Director. (133)

SHIFT charge hand required for rubber manufacturers in west London area. Knowledge of small press mouldings essential.—Box 129. (129)